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ABSTRACT

This report analyzes production and financial characteristics of sugar beet producers in seven regions. Section 1 examines the structural characteristics of U.S. sugar beet producers. Sugar beet production; land use, tenure, irrigation, and livestock enterprises are considered. Section 2 discusses production costs, including cost estimates, production efficiency estimates, and economies of size. Section 3 provides information on financial characteristics. Data are presented on sales class distributions, total cash income, and net worth. Section 4 briefly addresses sugar legislation and the farm firm. Discussions in the final section present structural and financial characteristics of sugar beet operators in each of the seven surveyed production regions: Michigan and Ohio; Minnesota and Eastern North Dakota; Colorado, Nebraska, and Southeastern Wyoming; Montana, Northwestern Wyoming, and Northwestern North Dakota; Eastern Idaho; Western Idaho and Oregon; and California. The report includes 40 tables and 20 figures. (YLB)

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Structural and Financial Characteristics of U.S. Sugar Beet Farms

Annette L. Clauson
Frederic L. Hoff

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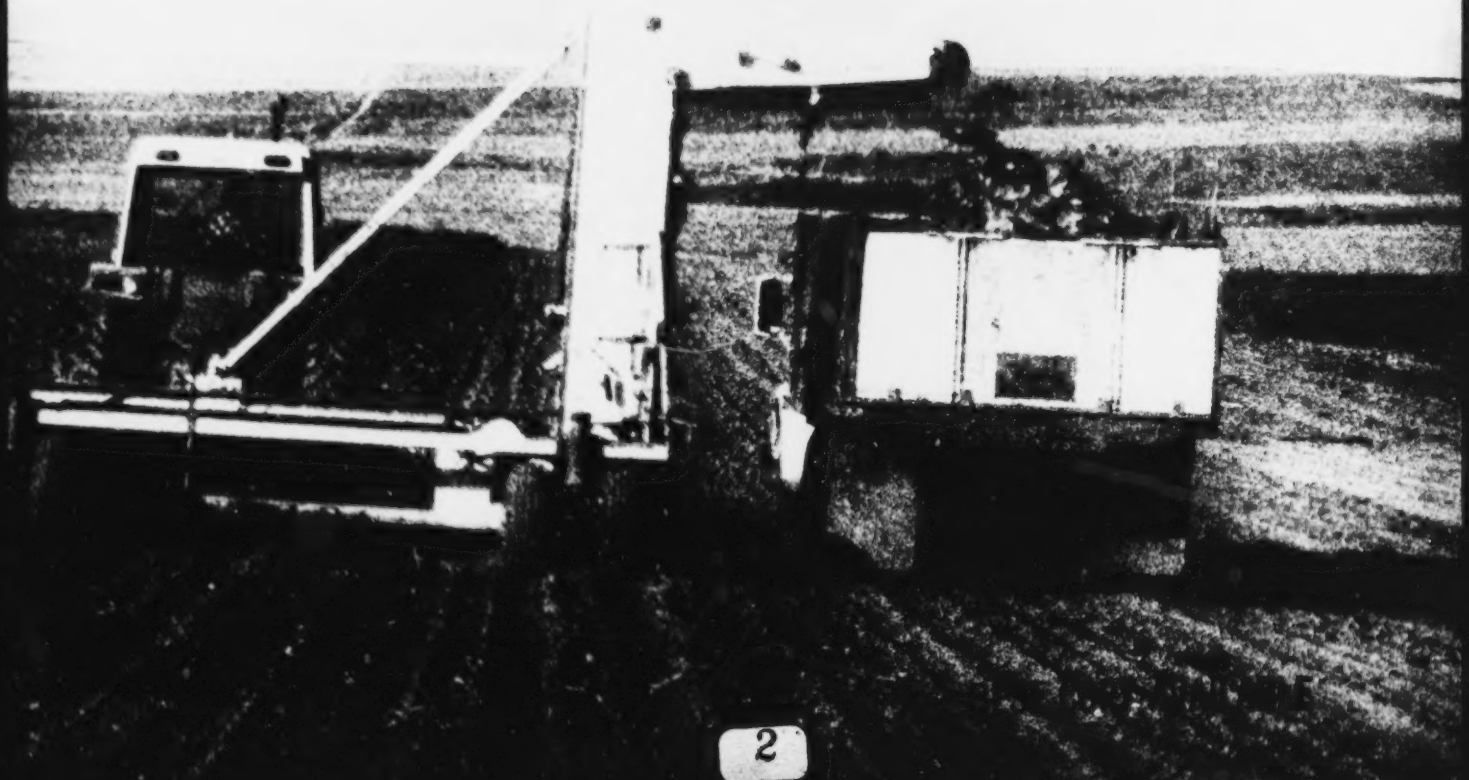

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ABSTRACT

Sugar beet farmers' 1984 average of $12,810 in total cash income was substantially below the $22,918 for all U.S. farms, primarily because sugar beet farmers received only $2,524 in nonfarm income compared with $16,054 for all U.S. farms. Because sugar beets are a high-value crop, more than 20 percent of all sugar beet producers had farm sales of $250,000 or more, compared with only 6 percent of all U.S. farms. Sugar beet farms tend to be more indebted than most farms, but the sugar beet farms' average net worth, $281,547, is slightly higher than the U.S. average, $251,845. Most production is concentrated in three regions: Minnesota and eastern North Dakota (35.2 percent of all production); California (18.8 percent); and Colorado, Nebraska, and southeastern Wyoming (12.8 percent). Sugar beets tend to be produced on farms which also produce livestock, mostly cattle, or other cash crops, mostly wheat, corn, barley, or soybeans. This report analyzes production and financial characteristics of sugar beet producers in seven regions.

Keywords: Sugar beets, income, costs, assets, debt, net worth.

* * *

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CONTENTS

	Page
SUMMARY	iii
INTRODUCTION	1
SURVEY BACKGROUND	1
STRUCTURAL CHARACTERISTICS	2
U.S. Sugar Beet Production	3
Land Use, Tenure, and Irrigation	4
Livestock Enterprises	5
SUGAR BEET PRODUCTION COSTS	6
Cost Estimates	10
Production Efficiency Estimates	10
Economies of Size	14
FINANCIAL CHARACTERISTICS	15
Sales Class Distributions	16
Total Cash Income	16
Net Worth	18
SUGAR LEGISLATION AND THE FARM FIRM	22
REGIONAL CHARACTERISTICS	24
Sugar Beet Production Region 1: Michigan and Ohio	26
Sugar Beet Production Region 2: Minnesota and Eastern North Dakota	31
Sugar Beet Production Region 3: Colorado, Nebraska, and Southeastern Wyoming	36
Sugar Beet Production Region 5: Montana, Northwestern Wyoming, and Northwestern North Dakota	41
Sugar Beet Production Region 6: Eastern Idaho	46
Sugar Beet Production Region 7: Western Idaho and Oregon	51
Sugar Beet Production Region 8: California	56

SUMMARY

Sugar beet farmers' 1984 average of $12,810 in total cash income was substantially below the $22,918 for all U.S. farms, primarily because sugar beet farmers received only $2,524 in nonfarm income compared with $16,054 for all U.S. farms. Because sugar beets are a high-value crop, more than 20 percent of all sugar beet producers had farm sales of $250,000 or more, compared with only 6 percent of all U.S. farms. Sugar beet farms tend to be more indebted than most farms, but the sugar beet farms' average net worth, $281,547, is slightly higher than the U.S. average, $251,845. Most production is concentrated in three regions: Minnesota and eastern North Dakota (35.2 percent of all production); California (18.8 percent); and Colorado, Nebraska, and southeastern Wyoming (12.8 percent). Sugar beets tend to be produced on farms which also produce livestock, mostly cattle, or other cash crops, mostly wheat, corn, barley, or soybeans. This report analyzes production and financial characteristics of sugar beet producers in seven regions.

Average total cash income for sugar beet producers ranged from $47,345 in Minnesota and eastern North Dakota to -$48,420 in California. Gross cash farm income for all regions averaged 86 percent of total cash income compared with 30 percent for all U.S. farms. Total cash income includes nonfarm income, ranging from $10,727 in Michigan and Ohio to $662 in eastern Idaho.

Some 53 percent of the debt held by sugar beet producers was held by producers whose debts equalled more than 40 percent of the value of their assets. These farms are generally vulnerable to financial stress. Debts of all U.S. farms equalled 22 percent of the value of assets. Average net worth of sugar beet producers was slightly higher than the $251,845 average of all U.S. farms.

Sugar beets are also grown in Michigan and Ohio; Montana, northwestern Wyoming, and northwestern North Dakota; eastern Idaho; and western Idaho and Oregon. The Colorado, Nebraska, and southeastern Wyoming region fared least well in 1984, with almost 90 percent of its crop produced at a net loss. That region's difficulties were mostly due to the default of a major beet sugar processor and to sharply reduced payments to growers. However, the region's sugar beet producers showed an overall profit on average because of strong livestock sales.

Sales of livestock and poultry from sugar beet producing farms ranged from $3,478 in California to more than $81,400 in Colorado, Nebraska, and southeastern Wyoming. Acreage planted to wheat, corn, barley, and soybeans occupied about 60 percent of the total acres operated by sugar beet producers. The number of acres planted to sugar beets per farm ranged from 72 acres in eastern Idaho to 222 acres in Minnesota and eastern North Dakota. The average for all regions was 144 acres per farm.

The data analyzed in this report are from the U.S. Department of Agriculture's 1984 Farm Costs and Returns Survey, the most recent data available for sugar beet cost of production information.

Structural and Financial Characteristics of U.S. Sugar Beet Farms

Annette L. Clauson
Frederic L. Hoff *

INTRODUCTION

Sugar beets are a high-value crop, but incomes vary widely among sugar beet producers because of differences in input costs, yields, risks, and nonfarm income. Climatic extremes in the widely disparate sugar beet production regions may create highly variable incomes from region to region or from year to year. Regional production and processing costs also vary and are the basis for regional, rather than national, support prices.

The financial condition and well-being of U.S. farmers is of great concern to farm credit institutions, agribusiness firms, government officials, and the farming community. Consequently, analysis of financial and structural characteristics of individual farm firms in different production regions has become increasingly important to better understand how they are affected by and how they adjust to changing economic conditions and farm policy legislation.

This report examines the structural and financial characteristics of U.S. sugar beet producers and summarizes cost estimates of producing sugar beets. Comparisons of sugar beet farms are made based on production costs and receipts developed for each individual farm firm. The information and data examined were collected by the U.S. Department of Agriculture (USDA) during the spring of 1985 for the 1984 sugar beet crop, the most recent data available.

SURVEY BACKGROUND

USDA's Economic Research Service (ERS) has determined and reported national average costs of producing individual crop and livestock commodities annually since 1974 when section 808 of the Agriculture and Consumer Protection Act of 1973 (P.L. 93-86) required USDA to establish annual national average costs of production for wheat, feed grains, cotton, and dairy commodities. Information on costs was based on data obtained from cost of production (COP) surveys. Changes suggested by a task force charged with reviewing the methodology used by ERS to estimate enterprise production costs were incorporated into the Agriculture and Food Act of 1981 (P.L. 97-98).

*The authors are agricultural economists in the Commodity Economics Division, Economic Research Service, U.S. Department of Agriculture.

USDA's National Agricultural Statistics Service (NASS) conducted the first comprehensive Farm Production Expenditure Survey (FPES) in 1956. FPES surveys were conducted periodically until 1979, when annual surveys were begun. The purpose of the surveys was to provide reliable data for calculating the prices-paid index weights for NASS and production expenditures, cash receipts, and income statistics for ERS's national income accounts.

To increase the accuracy of commodity COP estimates and to provide whole-farm analysis, prices-paid index weights, and national income statistics, USDA combined the FPES and COP surveys in 1984 into the probability-based Farm Costs and Returns Survey (FCRS). The FCRS melds together the FPES and multiple commodity versions of the COP surveys to simultaneously obtain operation and operating characteristics, production practices, income and expenditures, assets and liabilities, cash-flow, and other economic and financial data for the farm firm. Thus, the 1984 FCRS sugar beet questionnaires consisted of an aggregated expenditure and income section and a detailed technical practice section that yielded data for the COP accounts.

The FCRS, a multiframe probability-based survey, consists of a list frame and an area frame. Each sampled respondent represents a number of other farms of a similar size and type. The sample of farm operators consists of farmers selected from a list of known operators compiled by NASS and areas of rural land of known size in which all residents were interviewed to determine if they qualify as farm operators. Farms from the list frame were stratified by various criteria such as economic and labor size, production of COP crops, and other attributes. The area frame contains all land units in the United States, stratified by land-use type.

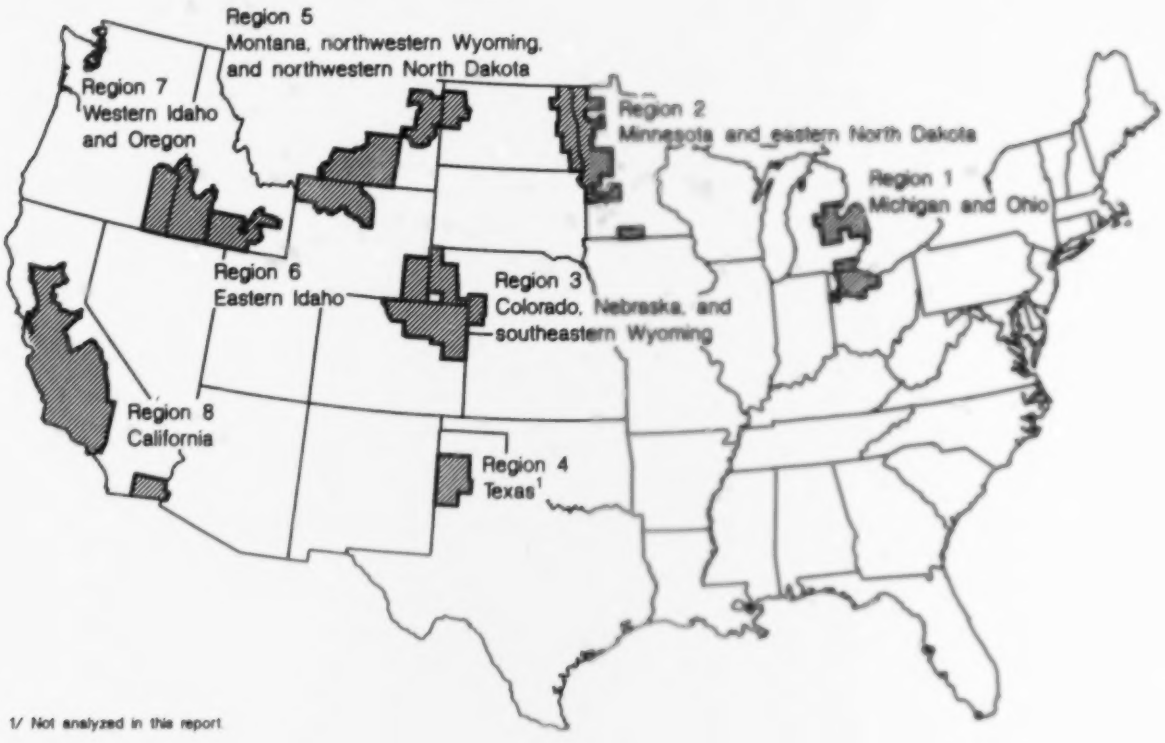
Only average production costs could be developed independently of any whole-firm analysis or economic assessment of the viability of the farm firm using previous survey methods. The average cost of producing a crop such as sugar beets could be determined at the regional level, but the structural and financial measures explaining the individual or the regional farms' financial well-being were missing. The FCRS provides data which allow us to examine the distribution of production costs by farm size and to better assess the effects of policy changes on industry structure.

The survey's enumeration of sugar beet operators for the 1984 crop provided 445 questionnaires covering seven of the eight sugar beet production regions (fig. 1). Sugar beet operators were not surveyed in Texas for the 1984 crop. The sample of sugar beet operators represented about 5 percent of the U.S. growers and was drawn from both the list and area frames which gives statistical reliability and unbiased estimates at the U.S. level, when expansion factors developed by NASS are used to weight the data. The survey data represent about 8,700 U.S. sugar beet operations if one incorporates the NASS expansion factors.

STRUCTURAL CHARACTERISTICS

Land operated by sugar beet producers averaged 835 acres, compared with 524 acres for all U.S. farms. Only 39 percent of the land operated by sugar beet producers was owned, however, compared with 58 percent for all U.S. farms. Crop and livestock sales for sugar beet producers averaged $205,665 in 1984, compared with only $65,417 for all U.S. farms. This sales difference is primarily because sugar beets are a high-value crop.

Figure 1
Sugar beet production regions



1/ Not analyzed in this report

U.S. Sugar Beet Production

Total area of sugar beets harvested varied from 1.5 million acres in 1975 to about 1 million acres in 1982 (table 1). Since 1982, acreage has increased each year reaching 1.2 million in 1986. Utah and Washington have not produced sugar beets since 1981. Acreage has declined considerably in Kansas, Colorado, and Nebraska. The only area with significant expansion is Minnesota and North Dakota, where acreage has nearly doubled from 244,000 acres in 1970 to 475,000 acres in 1986.

Variation in sugar beet acreage harvested has been mainly associated with the availability of processing plants and the price of sugar. The substantial increase in acreage harvested in Minnesota and eastern North Dakota during 1974 and 1976 coincided with the opening of new sugar beet processing plants in East Grand Forks and Renville, Minnesota, and Wahpeton and Hillsboro, North Dakota. Sugar beet acreage dropped sharply in Ohio, Colorado, and Nebraska in 1982 when processing plants closed in Fremont, Ohio, Ovid, Colorado, and Bayard, Nebraska, and in 1985 when the Great Western Sugar Company closed five plants in Colorado, one in Kansas, and one in Nebraska.

Sugar prices fluctuated significantly during the 1970's, stabilizing during the 1980's (table 2). The annual average wholesale per pound prices for refined beet sugar in the Chicago-West market ranged from 11 cents in 1970, to 32 cents in 1974, to 15 cents in 1977, to 38 cents in 1980, and then to 23 cents in 1985 and 1986. A 25-percent increase in sugar beet acres in 1975 followed the high price of sugar in 1974. Lower sugar beet prices during

Table 1--Sugar beet acres harvested, by State grouping

Year	Michigan and Ohio	Minnesota and North Dakota	Kansas, Colorado, and Nebraska	Texas and New Mexico	Wyoming and Montana
	1,000 acres				
1970	129.0	243.8	267.7	31.2	115.9
1971	123.9	185.2	255.6	21.0	108.4
1972	119.2	185.8	251.5	23.7	102.4
1973	116.3	210.5	222.1	21.4	98.7
1974	113.1	322.6	236.3	20.1	97.4
1975	130.6	326.9	293.9	34.6	106.2
1976	127.9	397.8	243.5	24.2	102.5
1977	108.0	415.2	163.7	19.1	93.4
1978	114.8	418.2	186.0	25.4	93.5
1979	101.7	387.1	157.4	21.5	91.6
1980	114.8	384.7	191.0	26.2	88.6
1981	113.4	400.9	169.4	27.3	89.4
1982	96.5	396.8	100.9	30.1	81.4
1983	116.6	401.2	109.4	31.9	73.4
1984	118.7	402.1	118.8	37.8	57.3
1985	130.7	420.2	55.7	37.0	92.1
1986	125.0	474.8	96.2	37.0	97.5

Year	Idaho and Oregon	Arizona and California	Utah and Washington	United States 1/
	1,000 acres			
1970	189.1	298.1	90.7	1,367.2
1971	183.9	359.5	103.0	1,341.9
1972	195.0	355.5	113.6	1,328.7
1973	162.7	275.6	110.1	1,217.5
1974	137.3	240.4	80.3	1,212.6
1975	176.2	343.3	104.9	1,516.6
1976	275.9	329.0	94.5	1,478.8
1977	115.6	229.8	71.4	1,216.2
1978	141.2	209.0	81.1	1,269.2
1979	132.6	226.3	1.5	1,197.7
1980	145.2	236.1	.6	1,187.2
1981	155.1	272.6	0	1,228.1
1982	146.3	174.8	0	1,026.8
1983	154.3	169.0	0	1,055.8
1984	155.6	206.0	0	1,096.3
1985	163.8	203.0	0	1,102.5
1986	172.8	188.0	0	1,191.3

1/ States may not add to U.S. total because some States are not listed.
Source: Crop Production, Agricultural Statistics Board, National Agricultural Statistics Service, U.S. Department of Agriculture, annual issues.

1976-79 led to reduced sugar beet acreage during 1977-80. Since 1982, sugar beet acreage has increased each year largely due to prices influenced by the Government price support program.

Land Use, Tenure, and Irrigation

U.S. sugar beet farms surveyed operated an average of 835 acres in 1984, ranging from 359 acres per farm in eastern Idaho to 1,269 acres per farm in Minnesota and eastern North Dakota (table 3). Individual farm firms surveyed that produced sugar beets operated from 17 acres to 21,130 acres. Of the total acres operated, over 60 percent was acquired through rental arrangements. This percentage ranged from 44 percent in Michigan and Ohio to 80 percent in California. The sugar beet growers surveyed rented out an average of only 11 acres of land to others.

Table 2--Refined beet sugar wholesale and support prices, Chicago-West market 1/

Year	Wholesale price 2/					National average support price 3/
	1st quarter	2nd quarter	3rd quarter	4th quarter	Calendar average	
	Cents per pound					
1970	10.64	10.97	11.25	11.45	11.08	N/A
1971	11.57	11.60	11.60	11.60	11.59	N/A
1972	11.83	11.90	11.90	11.65	11.82	N/A
1973	11.62	11.86	12.30	13.76	12.38	N/A
1974	17.54	26.35	34.09	50.29	32.07	N/A
1975	40.85	25.76	24.57	19.28	27.61	N/A
1976	18.30	18.48	16.50	14.44	16.93	N/A
1977	14.81	15.47	14.07	15.98	15.08	15.57
1978	18.41	18.65	18.65	18.91	18.66	16.99
1979	19.15	19.15	19.15	21.27	19.68	15.15
1980	28.71	36.30	41.17	47.00	38.29	N/A
1981	35.50	27.47	25.43	24.63	28.26	4/ 19.70
1982	27.50	26.77	28.20	28.00	27.62	20.15
1983	24.53	26.33	26.96	26.56	26.10	20.86
1984	26.62	26.42	25.35	24.24	25.66	20.76
1985	23.31	23.26	23.40	22.75	23.18	21.06
1986	23.34	23.27	23.92	23.17	23.42	21.09

N/A=Not applicable.
1/ F.o.b. prices, not delivered prices. To obtain delivered prices, add "freight prepays" and deduct discounts and allowances. Starting with 1982, prices are for bulk; prior years are for 100-pound bags.
2/ Starting 1983, prices are estimated market (not list) prices.
3/ Loan rate.
4/ Purchase rate.
Source: Milling and Baking News, annual issues.

Only in Michigan and Ohio was over half the sugar beet acreage owner-operated. The most common type of rental arrangement was cash in Minnesota and eastern North Dakota, eastern Idaho, and California. Elsewhere the share rental arrangement was most common.

In addition to sugar beets, the major crops produced in 1984 by the growers surveyed were wheat, corn, barley, and soybeans (table 4). These five crops occupied about 60 percent of the total acres operated. The number of acres planted to sugar beets per farm ranged from 72 acres in eastern Idaho to 222 acres in Minnesota and eastern North Dakota, with a U.S. average of 144 acres per farm.

Sixty-two percent of the sugar beet acreage was irrigated on the farms surveyed (table 5). Virtually all the sugar beet acreage was irrigated except for Michigan, Ohio, Minnesota, and eastern North Dakota. Approximately half of the owner-operated sugar beet acreage was irrigated.

Livestock Enterprises

Average total sales during 1984 from the marketing of livestock and poultry ranged from $3,478 in California to over $81,400 in Colorado, Nebraska, and southeastern Wyoming. The number of livestock and poultry on hand January 1, 1985, and the amount of market sales in 1984 were used to gauge the importance of livestock to the sugar beet operation. Beef production was by far the most prevalent livestock enterprise reported, followed by swine production (table 6).

Michigan and Ohio reported the largest average sales of both poultry and dairy per farm, while Montana, northwestern Wyoming, and northwestern North Dakota reported the largest average sheep sales. Receipts from the sales of dairy,

Table 3--Average acreage and tenure of land operated by sugar beet farms surveyed, by sugar beet region, 1984

Item	Region 1	Region 2	Region 3	Region 5
		Number		
Producers surveyed	28	119	115	56
Estimated sugar beet producers 1/	669	1,545	889	356
		Acres 2/		
All farm land:				
Owned	297	470	354	384
Rented from others	237	810	458	433
Rented to others	0	11	17	10
Total operated	534	1,269	795	807
		Percent 3/		
Sugar beet land:				
Owned	65.6	38.7	29.8	41.5
Cash rent	26.6	55.7	8.6	5.5
Share rent	7.7	5.5	61.5	53.0
Use rent free	0	0	.1	0

Item	Region 6	Region 7	Region 8	All regions
		Number		
Producers surveyed	58	24	45	445
Estimated sugar beet producers 1/	3,212	45	1,771	8,716
		Acres 2/		
All farm land:				
Owned	85	210	180	325
Rented from others	276	357	611	521
Rented to others	2	1	25	11
Total operated	359	566	766	835
		Percent 3/		
Sugar beet land:				
Owned	28.1	38.0	18.5	32.9
Cash rent	64.5	19.0	54.6	46.9
Share rent	7.4	43.0	26.0	20.0
Use rent free	0	0	.9	.2

Note: The following States compose the regions: Region 1--Michigan and Ohio; Region 2--Minnesota and eastern North Dakota; Region 3--Colorado, Nebraska, and southeastern Wyoming; Region 5--Montana, northwestern Wyoming, and northwestern North Dakota; Region 6--Eastern Idaho; Region 7--Western Idaho and Oregon; Region 8--California; the 1984 Farm Costs and Returns Survey did not cover sugar beet farms in Region 4 (New Mexico and Texas).

1/ Based on the NASS-assigned expansion factor used to estimate population totals.

2/ Average per farm.

3/ Percentage of all sugar beet acreage in region.

Source: 1984 Farm Costs and Returns Survey.

sheep, and poultry represented only 5 percent of the total average value of livestock and poultry marketed by the sugar beet farms surveyed.

SUGAR BEET PRODUCTION COSTS

The production cost estimates presented in this report were calculated using a computer program model developed to generate enterprise budgets for sugar beet farms at the firm level as well as aggregated regional and national budgets. The model uses selected portions of the ERS budget generator developed in the mid-1970's at Oklahoma State University for constructing and maintaining crop and livestock enterprise costs and returns budgets. These budgets represent typical farm operations at the regional and State levels. Because these COP survey questionnaires could not be read directly into a summarization or

Table 4--Crops produced on sugar beet farms surveyed, by sugar beet region and crop, 1984

Item	Region 1	Region 2	Region 3	Region 5
	Acres 1/			
Sugar beets	85	222	117	158
Corn	145	69	201	36
Soybeans	75	174	0	0
Wheat	38	382	47	89
Oats	11	3	0	6
Barley	4	158	5	54
Potatoes	7	23	2	0
Sunflowers	0	16	0	27
Vegetables	5	1	3	6
Hay	7	7	38	53
Other 2/	157	214	382	378
Total	534	1,269	795	807

Item	Region 6	Region 7	Region 8	All regions
	Acres 1/			
Sugar beets	72	150	119	144
Corn	3	22	142	100
Soybeans	0	0	0	51
Wheat	65	104	97	152
Oats	0	1	1	2
Barley	47	30	5	59
Potatoes	10	21	0	10
Sunflowers	0	0	50	13
Vegetables	1	15	62	9
Hay	7	22	36	25
Other 2/	154	201	254	270
Total	359	566	766	835

Note: The following States compose the regions: Region 1--Michigan and Ohio; Region 2--Minnesota and eastern North Dakota; Region 3--Colorado, Nebraska, and southeastern Wyoming; Region 5--Montana, northwestern Wyoming, and northwestern North Dakota; Region 6--Eastern Idaho; Region 7--Western Idaho and Oregon; Region 8--California; the 1984 Farm Costs and Returns Survey did not cover sugar beet farms in Region 4 (New Mexico and Texas).

1/ Average per farm.

2/ Represents the difference between total acres operated and the acres of selected crops reported.

Source: 1984 Farm Costs and Returns Survey.

output format, crop production or State boundaries had to be preselected. Those observations were summarized within a boundary to provide weighted means and averages of production, yield, inputs, machinery use, and irrigation. Because COP crop production information and farm financial and structural information were collected on separate surveys, individual farm levels or regional or State aggregated averages could not be compared.

The new Sugar Beet Farm Cost Estimating Model permits combining production cost estimates with financial and structural information by level of efficiency. All the structural and production costs in the regional and national budgets are weighted by the sugar beet acreage planted and tons harvested to give per acre costs. The financial costs are weighted by the NASS-assigned expansion factors to give population estimates and averages. All cost calculations use equations and standards approved by ERS's COP Review Board.

The Sugar Beet Farm Cost Estimating Model was used to produce 445 individual farm firm budgets, but those budgets may not be disclosed due to survey confidentiality. However, regional budgets for the 1984 crop based on the individual farm firm budgets are shown in tables 7 and 8 for the seven surveyed sugar beet production regions.

Table 5--Irrigation of sugar beet land, by sugar beet region, 1984

Item	Region 1	Region 2	Region 3	Region 5
	Percent			
Irrigated	0	0.2	98.3	100.0
Owned	0	.2	29.8	41.5
Cash rent	0	0	8.0	5.5
Share rent	0	0	60.4	53.0
Use rent free	0	0	.1	0
Nonirrigated	100.0	99.8	1.7	0
Owned	65.6	38.5	0	0
Cash rent	26.6	55.7	.6	0
Share rent	7.7	5.5	1.1	0
Use rent free	0	0	0	0

Item	Region 6	Region 7	Region 8	All regions
	Percent			
Irrigated	99.9	100.0	100.0	61.7
Owned	28.0	38.0	18.5	16.8
Cash rent	64.5	19.0	54.6	27.2
Share rent	7.3	43.0	26.0	17.6
Use rent free	0	0	.9	.2
Nonirrigated	.1	0	0	38.3
Owned	.1	0	0	16.2
Cash rent	0	0	0	19.7
Share rent	0	0	0	2.3
Use rent free	0	0	0	0

Note: The following States compose the regions: Region 1--Michigan and Ohio; Region 2--Minnesota and eastern North Dakota; Region 3--Colorado, Nebraska, and southeastern Wyoming; Region 5--Montana, northwestern Wyoming, and northwestern North Dakota; Region 6--Eastern Idaho; Region 7--Western Idaho and Oregon; Region 8--California; the 1984 Farm Costs and Returns Survey did not cover sugar beet farms in Region 4 (New Mexico and Texas).
Source: 1984 Farm Costs and Returns Survey.

The first budget item listed in tables 7 and 8 is the yield per harvested acre. The yield was obtained directly from the survey and varied among observations. The second section of the sugar beet budget contains the sugar beet receipts and production information. The price received per ton was the same for all producers within a region and is the average price that processors reported paying producers.

Variable costs, the third section of the budgets, are based on reported quantities and prices paid by sugar beet producers for variable inputs used in production. Input prices for nitrogen, phosphate, potash, and labor are based on average costs per unit reported by NASS at the State level. The remaining input prices and input quantities are from the 1984 survey.

The fourth section contains fixed costs. Capital ownership and irrigation costs are based on the reported machinery used, age of machinery, and hours of machinery used for sugar beets. These costs vary among observations as the size, age, price, and type of machines vary among producers and regions. An operator may defer machinery and equipment purchases in any given year. Over the long run, however, funds must be set aside by operators to replace wornout and obsolete equipment. The charge for the replacement of capital invested in buildings and equipment is calculated by subtracting the salvage value from the purchase price and dividing by the hours of useful life. The replacement cost per hour of useful life in each machine used in the sugar beet operation is then multiplied by the number of hours it is used to arrive at the replacement cost. Tax and insurance costs for machinery are computed on the basis of current machinery prices and then divided by two, which assumes

Table 6--Livestock and poultry inventory and sales on sugar beet farms surveyed, by sugar beet region, 1984

Item	Region 1	Region 2	Region 3	Region 5
	Number 1/			
Inventory: 2/				
Cattle and calves	56	23	137	91
Hogs and pigs	3	55	25	27
Sheep	0	0	17	120
Poultry	7	1	2	0
	Dollars 1/			
Sales:				
Cattle	49,923	6,557	77,555	21,566
Dairy	4,961	3,368	73	0
Hogs	194	11,433	3,415	3,150
Sheep	8	0	374	3,208
Poultry	58	5	0	0
Total	55,144	21,363	81,417	27,924

	Region 6	Region 7	Region 8	All regions
	Number 1/			
Inventory: 2/				
Cattle and calves	10	7	4	31
Hogs and pigs	1	24	0	15
Sheep	0	1	0	7
Poultry	0	0	0	1
	Dollars 1/			
Sales:				
Cattle	2,912	2,485	3,478	15,766
Dairy	1,239	0	0	1,436
Hogs	133	2,358	0	2,640
Sheep	0	0	0	170
Poultry	0	0	0	5
Total	4,284	4,843	3,478	20,017

Note: The following States compose the regions: Region 1--Michigan and Ohio; Region 2--Minnesota and eastern North Dakota; Region 3--Colorado, Nebraska, and southeastern Wyoming; Region 5--Montana, northwestern Wyoming, and northwestern North Dakota; Region 6--Eastern Idaho; Region 7--Western Idaho and Oregon; Region 8--California; the 1984 Farm Costs and Returns Survey did not cover sugar beet farms in Region 4 (New Mexico and Texas).

1/ Average per farm.

2/ Inventory on January 1, 1985.

Source: 1984 Farm Costs and Returns Survey.

machinery owned by the average commercial producer has 50 percent of its useful life remaining.

General farm overhead costs include those items that cannot be allocated to any single commodity produced on the farm. These costs include electricity, water, telephone, business expenses, tools and repairs, license fees, insurance, and other miscellaneous costs. Overhead costs are allocated to the sugar beet enterprise based on the ratio of sugar beet receipts to total farm receipts. Interest on operating and real estate loans is the total amount of interest paid, reported by the producers surveyed, allocated as a percentage of sugar beet receipts to total receipts for the entire farm.

The fifth section, returns to owned inputs, varies greatly from one producer to another. Returns to operating capital is calculated by multiplying the 6-month T-bill rate (0.0766) times total variable expenses times average length of time that the capital is used (8 months). The returns to nonland capital represents the value of machinery and equipment multiplied by the longrun real rate of return to production assets. The land charge is based on the quantities of land that are cash rented, owned, or share rented. The cash-rented and owned land costs are based on the acreage of sugar beets

produced on these two classes of land multiplied by the average State cash rental rate for sugar beet land. Share rental cost is calculated using the number of acres under a share rental agreement multiplied by the sugar beet receipts per acre times the share rental rate obtained from the survey data.

Cost Estimates

Production costs for the 1984 sugar beet crop averaged $600.95 per planted acre or $30.30 per net ton for the farms surveyed (tables 7 and 8). These estimates are slightly more than the national averages of $592.06 per planted acre and $30.08 per net ton reported for the 1984 crop primarily because the survey estimates represent the weighted average cost of each farm firm and individual beet yields and include interest costs. 1/ The national costs detailed in the 1986 report were based on aggregate production practices and yield. Also, Texas and New Mexico producers were not surveyed for sugar beets in the FCRS and, thus, were not included in the weighted cost estimates.

Total production costs per net ton of sugar beets were lowest in Michigan and Ohio at $24.02 and highest in eastern Idaho at $34.87. The weighted average variable cost of producing sugar beets in the surveyed regions was $14.03 per net ton and $278.28 per planted acre. Fertilizer and labor each accounted for around 18 percent of the total variable costs, and chemicals represented 15 percent. Variable costs per net ton were lowest in Michigan and Ohio at $10.58 and highest in California at $18.42.

The average charge for land was $135.65 an acre or $6.84 per net ton of sugar beets. The cost of land ranged from $4.98 per net ton in Minnesota and eastern North Dakota to $9.09 in western Idaho and Oregon.

Production Efficiency Estimates

Cost per ton, cost per acre, and value of receipts per acre are the production measures used to compare other structural characteristics of sugar beet production (tables 9-11). The structural characteristics compared in this report are yield per acre, cost per ton produced, cost per acre produced, receipts per acre, and variable costs. Four arbitrary categories were established for each measure of production: cost per ton (less than $25 per ton, $25-29 per ton, $30-$39 per ton, and $40 or more per ton), cost per acre (less than $400 per acre, $400-$549 per acre, $550-$699 per acre, and $700 or more per acre), and value per acre of receipts (less than $500 per acre, $500-$599 per acre, $600-$699 per acre, and $700 or more per acre). Each of these categories represents about 25 percent of all surveyed sugar beet farmers. Each is also a realistic figure from a national perspective. Some of the categories may not be realistic for a specific region, however. Higher input costs, for example, may force all sugar beet farmers in a region to have a cost per ton higher than $25.

Production and cost relationships provide valuable information when assessing efficiency. The lowest average cost per ton, $20.56, and lowest average cost per acre, $422.79, were less than half the highest average cost per ton of $46.05 and cost per acre of $865.73 (table 9). Average sugar beet receipts varied only 3 percent, from $665.72 to $683.80 per acre. Variable costs, 42-43 percent of total costs per acre, and average yield, 20 tons per acre,

1/ U.S. Department of Agriculture, Economic Research Service, Sugar and Sweetener Situation and Outlook Report, SSRV11N3, September 1986.

Table 7--Average sugar beet production cost per acre, by sugar beet region, 1984 crop

Item	Region 1	Region 2	Region 3	Region 5	Region 6	Region 7	Region 8	All regions
				Tons per acre				
Sugar beet yield per harvested acre	20.3	16.6	20.0	18.2	20.3	24.6	25.8	19.1
				Dollars per acre				
Gross receipts from production:								
Sugar beets	668.63	596.82	466.01	644.86	754.17	908.37	906.76	668.26
Sugar beet tops	0	0	2.65	2.14	.35	1.77	3.64	1.36
Total receipts	668.63	596.82	468.66	647.00	754.52	910.14	910.40	669.62
Variable costs:								
Seed	11.45	22.12	23.29	36.96	21.55	27.17	15.85	22.60
Fertilizer	79.01	32.89	40.33	58.44	64.38	95.50	58.85	50.66
Chemicals	37.78	51.51	25.74	32.03	27.71	41.53	45.70	40.36
Custom operations	12.09	12.21	19.25	30.69	21.24	41.33	130.08	35.99
Fuel and lubrication	16.67	16.54	19.68	24.14	19.46	17.82	19.34	18.69
Repairs	22.02	22.69	27.73	31.02	26.74	24.46	22.57	24.90
Labor	35.66	37.41	49.63	63.79	31.02	59.40	70.68	47.83
Irrigation	0	0	37.97	2.88	76.00	20.69	87.75	29.45
Irrigation water	0	0	6.34	11.97	10.04	9.75	24.96	7.80
Subtotal	214.68	195.37	249.96	291.92	298.14	337.65	475.78	278.28
Fixed costs:								
Capital replacement	17.39	17.99	19.59	23.81	20.75	18.06	19.69	19.40
Taxes and insurance	7.07	6.67	8.01	9.30	8.00	6.53	5.67	7.18
General farm overhead	20.17	32.32	39.16	40.25	86.33	81.90	48.72	45.15
Irrigation	0	0	12.48	.39	25.40	3.54	29.93	9.63
Interest (operating and real estate)	80.55	69.85	72.63	75.94	87.40	152.73	74.40	79.37
Subtotal	125.18	126.83	151.87	149.69	227.88	262.76	178.41	160.72
Returns to owned inputs:								
Operating capital	13.00	11.68	14.50	16.85	17.97	20.51	29.03	16.63
Nonland capital	9.53	9.03	10.70	12.48	10.87	8.98	7.52	9.67
Land	125.12	82.53	134.22	153.12	154.07	223.76	202.20	135.65
Subtotal	147.65	103.24	159.42	182.45	182.91	253.25	238.75	161.96
Total production cost	487.51	425.44	561.25	624.06	708.93	853.66	892.94	600.95

Note: The following States compose the regions: Region 1--Michigan and Ohio; Region 2--Minnesota and eastern North Dakota; Region 3--Colorado, Nebraska, and southeastern Wyoming; Region 5--Montana, northwestern Wyoming, and northwestern North Dakota; Region 6--Eastern Idaho; Region 7--Western Idaho and Oregon; Region 8--California; the 1984 Farm Costs and Returns Survey did not cover sugar beet farms in Region 4 (New Mexico and Texas).

Source: 1984 Farm Costs and Returns Survey.

Table 8--Average sugar beet production cost per ton, by sugar beet region, 1984 crop

Item	Region 1	Region 2	Region 3	Region 5	Region 6	Region 7	Region 8	All regions
				Tons per acre				
Sugar beet yield per harvested acre	20.3	16.6	20.0	18.2	20.3	24.6	25.8	19.1
				Dollars per ton				
Gross receipts from production:								
Sugar beets	32.95	36.00	23.30	35.40	37.10	36.90	35.10	33.69
Sugar beet tops	0	0	.13	.12	.02	.07	.14	.07
Total receipts	32.95	36.00	23.43	35.52	37.12	36.97	35.24	33.76
Variable costs:								
Seed	.56	1.33	1.16	2.03	1.06	1.10	.61	1.14
Fertilizer	3.89	1.98	2.02	3.21	3.17	3.88	2.28	2.55
Chemicals	1.86	3.11	1.29	1.76	1.36	1.69	1.77	2.03
Custom operations	.60	.74	.96	1.68	1.04	1.68	5.04	1.81
Fuel and lubrication	.82	1.00	.98	1.33	.96	.72	.75	.94
Repairs	1.09	1.37	1.39	1.70	1.32	.99	.87	1.26
Labor	1.76	2.26	2.48	3.50	1.53	2.41	2.74	2.41
Irrigation	0	0	1.90	.16	3.74	.84	3.40	1.49
Irrigation water	0	0	.32	.66	.49	.40	.97	.39
Subtotal	10.58	11.78	12.50	16.03	14.67	13.72	18.42	14.03
Fixed costs:								
Capital replacement	.86	1.09	.98	1.31	1.02	.73	.76	.98
Taxes and insurance	.35	.40	.40	.51	.39	.27	.22	.36
General farm overhead	.99	1.95	1.96	2.21	4.25	3.33	1.89	2.28
Irrigation	0	0	.62	.02	1.25	.14	1.16	.49
Interest (operating and real estate)	3.97	4.21	3.63	4.17	4.30	6.20	2.88	4.00
Subtotal	6.17	7.65	7.59	8.22	11.21	10.67	6.91	8.10
Returns to owned inputs:								
Operating capital	.64	.70	.72	.92	.88	.83	1.12	.84
Nonland capital	.47	.54	.53	.69	.53	.36	.29	.49
Land	6.17	4.98	6.71	8.41	7.58	9.09	7.83	6.84
Subtotal	7.28	6.23	7.97	10.02	9.00	10.29	9.24	8.17
Total production cost	24.02	25.66	28.06	34.26	34.87	34.68	34.57	30.30

Note: The following States compose the regions: Region 1--Michigan and Ohio; Region 2--Minnesota and eastern North Dakota; Region 3--Colorado, Nebraska, and southeastern Wyoming; Region 5--Montana, northwestern Wyoming, and northwestern North Dakota; Region 6--Eastern Idaho; Region 7--Western Idaho and Oregon; Region 8--California; the 1984 Farm Costs and Returns Survey did not cover sugar beet farms in Region 4 (New Mexico and Texas).

Source: 1984 Farm Costs and Returns Survey.

Table 9--The effect of cost per ton of sugar beets produced on structural characteristics in all regions in 1984

Structural characteristic	Cost per ton of beets produced			
	Less than $25	$25 - $29	$30 - $39	$40 or more
	Tons 1/			
Yield per acre	20	20	20	20
	Dollars 1/			
Cost per ton produced	20.56	27.38	34.81	46.05
Cost per acre produced	422.79	550.15	681.83	865.73
Receipts per acre	665.42	661.83	674.59	683.80
Variable costs	180.73	232.98	285.52	370.72

1/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

Table 10--The effect of cost per acre of sugar beets produced on structural characteristics in all regions in 1984

Structural characteristic	Cost per acre of beets produced			
	Less than $400	$400 - $549	$550 - $699	$700 or more
	Tons 1/			
Yield per acre	17	18	20	25
	Dollars 1/			
Cost per ton produced	21.80	28.19	32.30	37.12
Cost per acre produced	338.75	474.57	617.34	891.49
Receipts per acre	558.08	580.63	637.20	862.38
Variable costs	147.24	197.82	259.07	379.90

1/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

Table 11--The effect of value per acre of sugar beet receipts on structural characteristics in all regions in 1984

Structural characteristic	Value per acre of beet receipts			
	Less than $500	$500 - $599	$600 - $699	$700 or more
	Tons 1/			
Yield per acre	16	17	19	24
	Dollars 1/			
Cost per ton produced	33.93	28.66	28.58	31.74
Cost per acre produced	479.02	488.46	532.26	772.38
Receipts per acre	396.38	547.74	642.92	877.18
Variable costs	194.43	201.97	230.54	330.45

1/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

indicate that the fixed cost percentage remains the same across the four cost categories, but the higher cost producers have lower returns to owned inputs.

Variations in soil productivity, weather, and farm practices, including management styles and commodity mixes, contribute greatly to different yields and production averages. As the average cost per acre to grow sugar beets increases, the average yield, cost per ton, receipts per acre, and variable costs generally increase, but at different rates. The data suggest that producers with high costs per acre (more than $700 per acre) generally do not receive sufficient revenues from the sugar beet crop, averaging $862 an acre, to cover the production costs, averaging $891 an acre (table 10).

The per acre value of the sugar beet crop depends on yield and the price per ton paid by the processor. All growers sign a contract with an independent processor or a cooperative before planting beets. Growers signing a "participating" contract receive payments based on sugar content of the beets and a share of the net returns the processor receives. Cooperative growers receive their prorated share of returns after all expenses and other deductions are paid. Any processor that obtains a price support loan from the Commodity Credit Corporation (CCC) must guarantee producers the regional minimum support price.

The producers in the two higher value categories of $600-$699 and $700 or more average higher variable and total costs per planted acre, but they also receive larger receipt payments per acre of sugar beets sold (table 11). Based on a profit margin of average receipts per acre to average costs per acre, producers whose receipts are $600-$699 per acre are more profitable than producers whose receipts are more than $700 per acre. Producers whose receipts are $600-$699 per acre have a profit margin of 17 percent, compared with 12 percent or less for all other producers. Producers with receipts of less than $500 are generally unprofitable.

Economies of Size

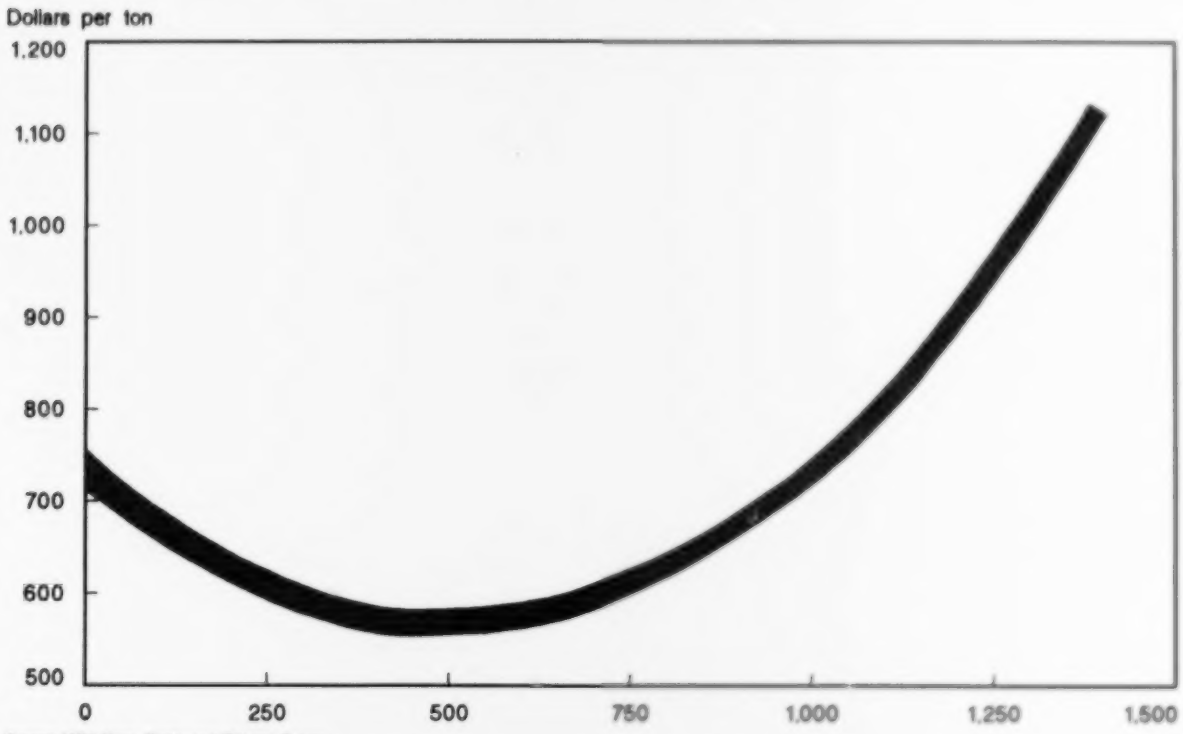
The lowest average cost for growing sugar beets was on acreage sizes of about 400-600 acres. The average cost per acre associated with growing sugar beets showed little variation on the farms of this size range. Regional variations and practices contribute to higher average and more variable production costs on the smaller acreages (less than 400 acres) and larger acreages (more than 600 acres).

Figure 2 depicts an average cost curve for the 1984 sugar beet crop. Several models were tested and the model that provided the best fit was the quadratic form of the linear model:

$$Y_i = \beta_0 + \beta_1 X_i + \beta_2 X_i^2 + \varepsilon_1$$

where Y = cost per acre, X = acres harvested, and β and ε are coefficients. We used the NASS-assigned expansion factor to obtain a weighted least squares fit for the cost curve. This equation predicts the average cost at each farm size or acreage level, not the minimum cost of producing sugar beets.

Figure 2
Estimated U.S. average cost of growing sugar beets, by acreage planted, 1984



Source: 1984 Farm Costs and Returns Survey.

FINANCIAL CHARACTERISTICS

Sugar beet producers' net cash farm income varied widely by region in 1984, ranging from almost $44,000 in Minnesota and eastern North Dakota to a loss of almost $50,000 in California. The assets of sugar beet farms averaged considerably higher at $505,363 than for all U.S. farms at $322,732. Debts owed by sugar beet producers averaged 44 percent of the value of assets, compared with only 22 percent for all U.S. farms. Thus, the net worth of sugar beet producers was only slightly higher than for all U.S. farms.

Financial data supplied by the survey respondents were used to develop total cash income and net worth statements for each sugar beet operator. The statements for farms within the seven production regions were then averaged along with selected strata of sugar beet production costs and receipts. The reported debt and assets were also used to calculate each farm's net worth and debt/asset ratio.

The financial data presented in this report should be interpreted carefully, because they represent disaggregated per farm averages and are only a single year's perspective on the diversity of financial conditions among sugar beet operations. These data are not intended to provide a historical perspective of changing financial conditions in the sugar beet sector. Nevertheless, these data, which exclude landlords' assets and debt, are useful to evaluate the financial conditions of sugar beet farms from the perspective of farm enterprise and household cash income and the solvency of the farm firm.

Sales Class Distributions

Sugar beet farm operators tend to be concentrated in upper sales class categories compared with all farm operators surveyed in the 1984 survey and the 1982 Census of Agriculture (fig. 3). More than 20 percent of all sugar beet producers had farm sales of $250,000 or more in 1984. This compares with only 6 percent of all FCRS farm operators surveyed in 1984 and less than 4 percent of all farm operators surveyed in the 1982 Census of Agriculture. Sugar beets are a high-value crop averaging $450-$950 an acre in revenue with an average of 144 acres planted per farm.

Total Cash Income

Average total cash income ranged from $47,345 in Minnesota and eastern North Dakota to -$48,420 in California (table 12). More than 50 percent of gross cash farm income was from crop sales in each region surveyed, averaging 56 percent for all regions combined. Total cash income averaged $12,810 for all regions surveyed. Nonfarm income, including money received from nonfarm-related businesses, cash wages and salaries, interest, Social Security, and retirement, was highest in Michigan and Ohio at $10,727 per farm and lowest in eastern Idaho at $662.

Total cash income is total income that farmers earn in a year from their farm operation sales, regardless of the level of production or the year the marketed output was produced, plus nonfarm sources minus cash operating expenses. Total cash income is calculated as the difference between gross

Figure 3
Distribution of selected groups of farm operators by sales class

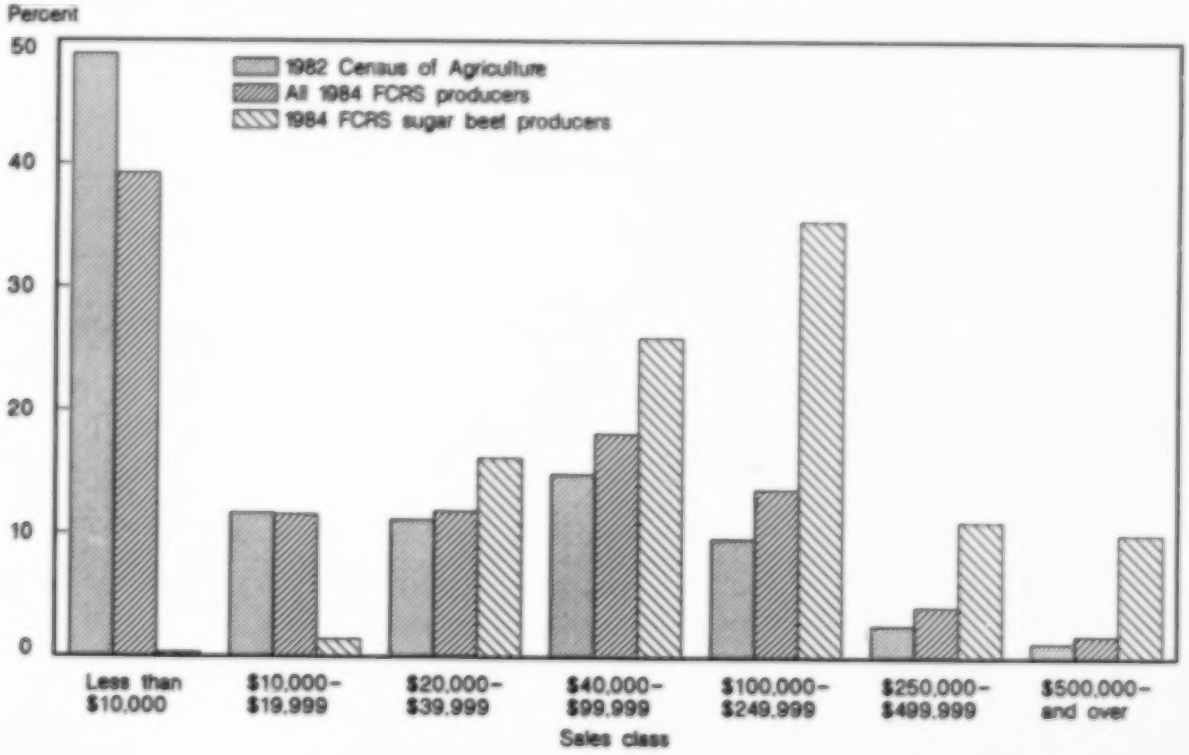


Table 12--Total cash income of sugar beet producers surveyed, by sugar beet region, 1984

Item	Region 1	Region 2	Region 3	Region 5
	Dollars 1/			
Livestock sales	55,144	21,363	81,417	27,924
+ Crop sales	142,493	232,462	108,773	122,336
+ Other farm income	11,053	24,798	9,405	7,690
= Gross cash farm income	208,690	278,623	199,595	157,950
- Cash operating expenses	187,034	235,014	190,664	138,221
= Net cash farm income	21,656	43,609	8,931	19,729
+ Nonfarm income	10,727	3,736	2,993	2,996
= Total cash income	32,383	47,345	11,924	22,725

Item	Region 6	Region 7	Region 8	All regions
	Dollars 1/			
Livestock sales	4,284	4,843	3,478	20,017
+ Crop sales	96,539	261,055	361,892	185,648
+ Other farm income	3,797	8,891	9,826	10,191
= Gross cash farm income	104,620	274,789	375,196	215,856
- Cash operating expenses	81,535	246,236	425,047	205,570
= Net cash farm income	23,085	28,553	(49,851)	10,286
+ Nonfarm income	662	2,496	1,431	2,524
= Total cash income	23,747	31,049	(48,420)	12,810

Note: The following States compose the regions: Region 1--Michigan and Ohio; Region 2--Minnesota and eastern North Dakota; Region 3--Colorado, Nebraska, and southeastern Wyoming; Region 5--Montana, northwestern Wyoming, and northwestern North Dakota; Region 6--Eastern Idaho; Region 7--Western Idaho and Oregon; Region 8--California; the 1984 Farm Costs and Returns Survey did not cover sugar beet farms in Region 4 (New Mexico and Texas).
1/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

cash income from farm and nonfarm sources less cash operating expenses, providing a measure of farm operator earnings.

Sugar beet producers with costs of $25 to $29 per ton have the highest average crop sales, gross cash farm income, and total cash income (table 13). Operators with the highest cost per ton, $40 or more, average more expenses than sales, resulting in a negative total cash income.

The total cash income numbers were stratified by the cost per acre to produce sugar beets (table 14). The operators who spent the least (less than $400 per acre) to produce their sugar beets had an average total cash income of $79,083. The operators spending the most (more than $700 an acre) averaged more operating expenses than gross cash farm income, resulting in a negative total cash income.

Operators grossing less than $500 an acre in receipts had a negative net cash-flow. Producers grossing $500-$699 were the most profitable, averaging more than $42,000 in total cash income per farm. Operators grossing more than $700 per acre had a positive cash-flow of $2,100 (table 15).

Table 13--The effect of cost per ton of sugar beets produced on total cash income in all regions in 1984

Item	Cost per ton of beets produced			
	Less than $25	$25 - $29	$30 - $39	$40 or more
	Dollars 1/			
Livestock sales	37,227	19,608	13,820	6,340
+ Crop sales	180,237	258,774	148,091	194,653
+ Other farm income	10,649	13,152	7,246	11,713
= Gross cash farm income	228,113	291,534	169,157	212,705
- Cash operating expenses	197,136	252,061	164,919	242,289
= Net cash farm income	30,977	39,473	4,238	(29,584)
+ Nonfarm income	1,701	4,613	2,505	2,149
= Total cash income	32,678	44,086	6,743	(27,435)

1/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

Table 14--The effect of cost per acre of sugar beets produced on total cash income in all regions in 1984

Item	Cost per acre of beets produced			
	Less than $400	$400 - $549	$550 - $699	$700 or more
	Dollars 1/			
Livestock sales	51,382	51,992	10,674	7,432
+ Crop sales	237,074	184,368	124,777	255,378
+ Other farm income	28,225	14,859	5,188	9,196
= Gross cash farm income	316,680	251,218	140,639	272,005
- Cash operating expenses	240,972	220,922	133,733	287,516
= Net cash farm income	75,708	30,296	6,906	(15,511)
+ Nonfarm income	3,375	4,237	2,282	1,749
= Total cash income	79,083	34,533	9,188	(13,762)

1/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

Net Worth

Net worth is calculated as the difference between farm assets and farm debt. Farm assets include land and buildings, farm equipment, livestock and crop inventories, and purchased inputs (table 16). The average value of farm assets ranged from $214,196 in eastern Idaho to $827,148 in Minnesota and eastern North Dakota. The average value of farm assets for all regions surveyed was $505,363, compared with $322,732 for all U.S. farms.

Farm debt includes money owed to any financial bank or association, merchants, individuals, and the Commodity Credit Corporation (as of January 1, 1985). The average farm debt ranged from a low of $86,348 in eastern Idaho to a high of $380,103 in California. Net worth remains the highest in regions retaining a higher market value for farmland and buildings. The highest average net worths were reported in Minnesota and eastern North Dakota at $534,117 and

Table 15--The effect of value per acre of sugar beet receipts on total cash income in all regions in 1984

Item	Value per acre of beet receipts			
	Less than $500	$500 - $599	$600 - $699	$700 or more
	Dollars 1/			
Livestock sales	39,600	36,872	37,497	9,846
+ Crop sales	125,180	181,540	203,221	190,299
+ Other farm income	18,376	21,562	13,352	5,772
= Gross cash farm income	183,156	239,974	254,070	205,917
- Cash operating expenses	199,746	202,168	215,605	204,963
= Net cash farm income	(16,590)	37,806	38,465	954
+ Nonfarm income	3,935	6,081	3,981	1,184
= Total cash income	(12,655)	43,887	42,446	2,138

1/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

Table 16--Net worth of sugar beet producers surveyed, by sugar beet region, 1984

Item	Region 1	Region 2	Region 3	Region 5
	Dollars 1/			
Land and buildings	611,345	481,175	286,314	295,717
+ Farm equipment	149,300	221,341	145,916	178,065
+ Livestock inventory	15,638	14,517	65,250	37,498
+ Crop inventory	33,221	103,402	47,870	13,707
+ Purchased inputs	5,679	6,713	2,004	1,216
= Farm assets	815,183	827,148	547,354	526,203
- Farm debt	330,764	293,031	206,062	171,910
= Net worth	484,419	534,117	341,292	354,293
	Percent 1/			
Debt/asset ratio	41	35	38	33

	Region 6	Region 7	Region 8	All regions
	Dollars 1/			
Land and buildings	135,741	478,157	361,779	312,037
+ Farm equipment	67,754	204,919	195,232	144,025
+ Livestock inventory	4,369	6,894	2,241	14,348
+ Crop inventory	5,272	4,267	20,186	32,519
+ Purchased inputs	1,060	2,878	380	2,434
= Farm assets	214,196	697,115	579,818	505,363
- Farm debt	86,348	292,902	380,103	223,816
= Net worth	127,848	404,213	199,715	281,547
	Percent 1/			
Debt/asset ratio	40	42	66	44

Note: The following States compose the regions: Region 1--Michigan and Ohio; Region 2--Minnesota and eastern North Dakota; Region 3--Colorado, Nebraska, and southeastern Wyoming; Region 5--Montana, northwestern Wyoming, and northwestern North Dakota; Region 6--Eastern Idaho; Region 7--Western Idaho and Oregon; Region 8--California; the 1984 Farm Costs and Returns Survey did not cover sugar beet farms in Region 4 (New Mexico and Texas).
1/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

Michigan and Ohio at $484,419. Net worth averaged $281,547 for all regions surveyed, compared with $251,845 for all U.S. farms.

The average debt/asset ratio for all regions surveyed is 44 percent, with a range from 33 percent in Montana, northwestern Wyoming, and northwestern North Dakota to a high of 66 percent in California. The debt/asset ratio is a measure of solvency for the farm business, reflecting the net worth or equity of the farm operation. Farms with debt/asset ratios greater than 40 percent have generally been considered to be in a vulnerable solvency position. Compared with all other farm producers surveyed in 1984 (U.S. debt/asset ratio of 22 percent), sugar beet producers were generally more highly leveraged (fig. 4). Most of the sugar beet producers surveyed had some debt, with 53 percent of debt by operators with debt/asset ratios of more than 40 percent.

All regions stratified by cost per ton to produce sugar beets show that producers with the highest average net worth of $571,394 produced sugar beets at $25-$29 a ton (table 17). The lowest cost producers, at less than $25 a ton, had an average net worth of $376,636, the lowest farm debt, and an average debt/asset ratio of 26 percent. The highest cost producers, at more than $40 a ton, averaged a negative net worth and had a corresponding debt/asset ratio of more than 100 percent; these producers were technically insolvent.

Stratifying the surveyed producers by cost per acre more evenly distributes the high and low cost producers across the four production categories because of regional and production variations (table 18). The lowest cost producers

Figure 4
Distribution of selected groups of farm operators by debt/asset ratio, 1984

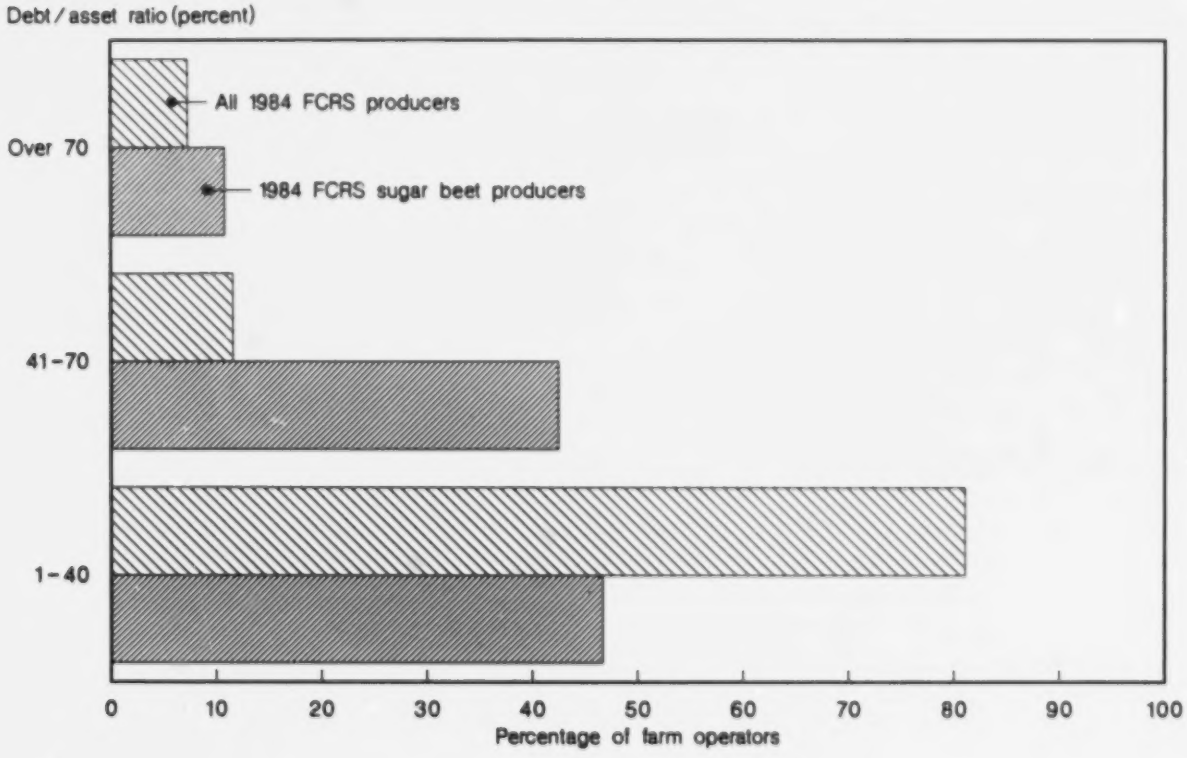


Table 17--The effect of cost per ton of sugar beets produced on net worth in all regions in 1984

Item	Cost per ton of beets produced			
	Less than $25	$25 - $29	$30 - $39	$40 or more
	Dollars 1/			
Land and buildings	281,288	597,412	279,791	194,313
+ Farm equipment	171,907	184,534	124,730	105,527
+ Livestock inventory	14,000	26,142	12,089	9,593
+ Crop inventory	41,484	52,833	18,194	26,666
+ Purchased inputs	3,139	4,735	1,688	914
= Farm assets	511,818	865,656	436,492	337,013
- Farm debt	135,182	294,262	189,888	340,781
= Net worth	376,636	571,394	246,604	(3,768)
	Percent 1/			
Debt/asset ratio	26	34	44	101

1/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

Table 18--The effect of cost per acre of sugar beets produced on net worth in all regions in 1984

Item	Cost per acre of beets produced			
	Less than $400	$400 - $549	$550 - $699	$700 or more
	Dollars 1/			
Land and buildings	402,347	452,596	216,147	348,442
+ Farm equipment	220,647	182,921	119,149	135,448
+ Livestock inventory	24,282	22,952	14,468	6,785
+ Crop inventory	99,808	59,429	17,715	18,699
+ Purchased inputs	7,490	4,297	1,389	1,379
= Farm assets	754,574	722,195	368,868	510,753
- Farm debt	225,605	284,426	115,838	344,689
= Net worth	528,969	437,769	253,030	166,064
	Percent 1/			
Debt/asset ratio	30	39	31	67

1/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

averaging less than $400 an acre in sugar beet production costs have the largest farm asset value, the largest net worth, and the lowest debt/asset ratio, 30 percent. The highest cost producers, with more than $700 an acre in production costs, also have the highest yields and are geographically located in the eastern regions of Idaho, Oregon, and California. These producers had the highest average debt/asset ratio, 67 percent.

The producers averaging the largest net worth and lowest debt/asset ratio had gross receipts of $500-$699 per acre because of their higher farm asset value (table 19). Producers averaging more than $700 an acre in receipts gross more for their sugar beet crop, but they average less in farm asset value and tend to be smaller firms.

Table 19--The effect of value per acre of sugar beet receipts on net worth in all regions in 1984

Item	Value per acre of beet receipts			
	Less than $500	$500 - $599	$600 - $699	$700 or more
	Dollars 1/			
Land and buildings	365,508	367,850	461,283	260,198
+ Farm equipment	171,555	187,256	188,091	120,831
+ Livestock inventory	45,999	23,301	29,013	5,184
+ Crop inventory	62,148	64,839	54,322	16,448
+ Purchased inputs	2,378	4,730	4,403	1,467
= Farm assets	647,588	647,976	737,112	404,128
- Farm debt	291,135	249,941	268,419	199,757
= Net worth	356,453	398,035	468,693	204,371
	Percent 1/			
Debt/asset ratio	45	39	36	49

1/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

SUGAR LEGISLATION AND THE FARM FIRM

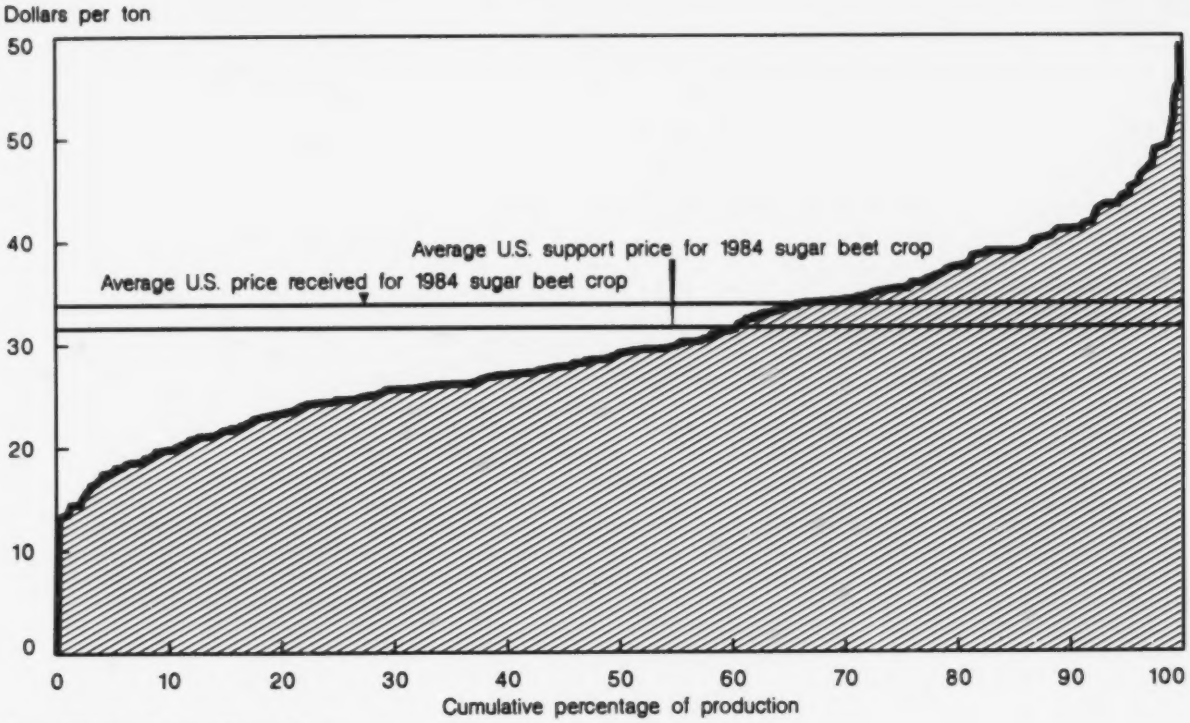
The Agriculture and Food Act of 1981 (P.L. 97-98) mandated a price support program for domestically grown sugarcane and sugar beets through the 1985/86 crop year. The Food Security Act of 1985 (P.L. 99-198) generally left major provisions of the 1981 Act in place for the 1986/87-90/91 crop years. The support price per net ton for the 1984 sugar beet crop was established by USDA at $27.79 in region 1, $32.24 in region 2, $31.23 in region 3, $32.71 in region 4, $31.37 in region 5, $31.05 in regions 6 and 7, and $32.98 in region 8. The U.S. weighted average 1984 loan rate for beet sugar was $31.63 per net ton.

Knowledge about the distribution of production costs can be very useful to policy analysts and legislators for better assessing the effects of Government commodity programs on industry structure and the financial well-being of the farm firm. About 60 percent of the 1984 U.S. sugar beet crop was produced at a cost below the U. S. average support price of $31.63 (fig. 5). The producers received a weighted average price of $33.90 a net ton, ranging from $23.30 in region 3 to $37.10 in region 6. Sugar beet producers in region 3 (Colorado, Nebraska, and southeastern Wyoming) experienced an unusual harvest season and received a lower price per ton because of the closing of several processing plants by the Great Western Sugar Company. Although most of the sugar beets were delivered to the company, Great Western went into default, resulting in a reduced payment to producers in this region. Thus, most of the region 3 sugar beet producers operated at a loss during the survey year, receiving payments that were about 30 percent below the contract price.

About 65 percent of the U.S. sugar beets were produced at a profit. Figure 6 shows the percentage of U.S. sugar beets produced below and above the breakeven ratio (production costs per acre to receipts per acre) of 1.0. The producers' individual cost budgets suggest that the reasons for higher production costs are varied, including high interest costs, low yields, small acreages, high labor costs, and high custom costs.

Figure 5

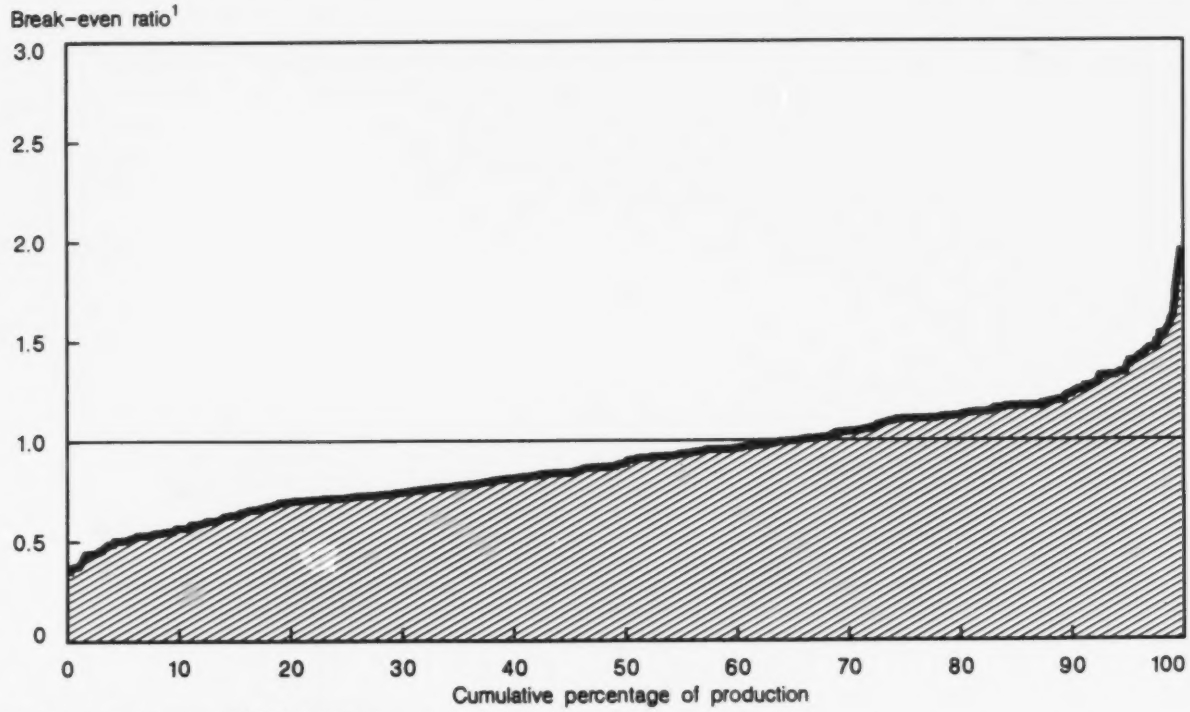
All regions: Percentage of sugar beets produced at selected cost levels per ton, 1984



Source: 1984 Farm Costs and Returns Survey.

Figure 6

All regions: Percentage of sugar beets produced at selected break-even ratios, 1984

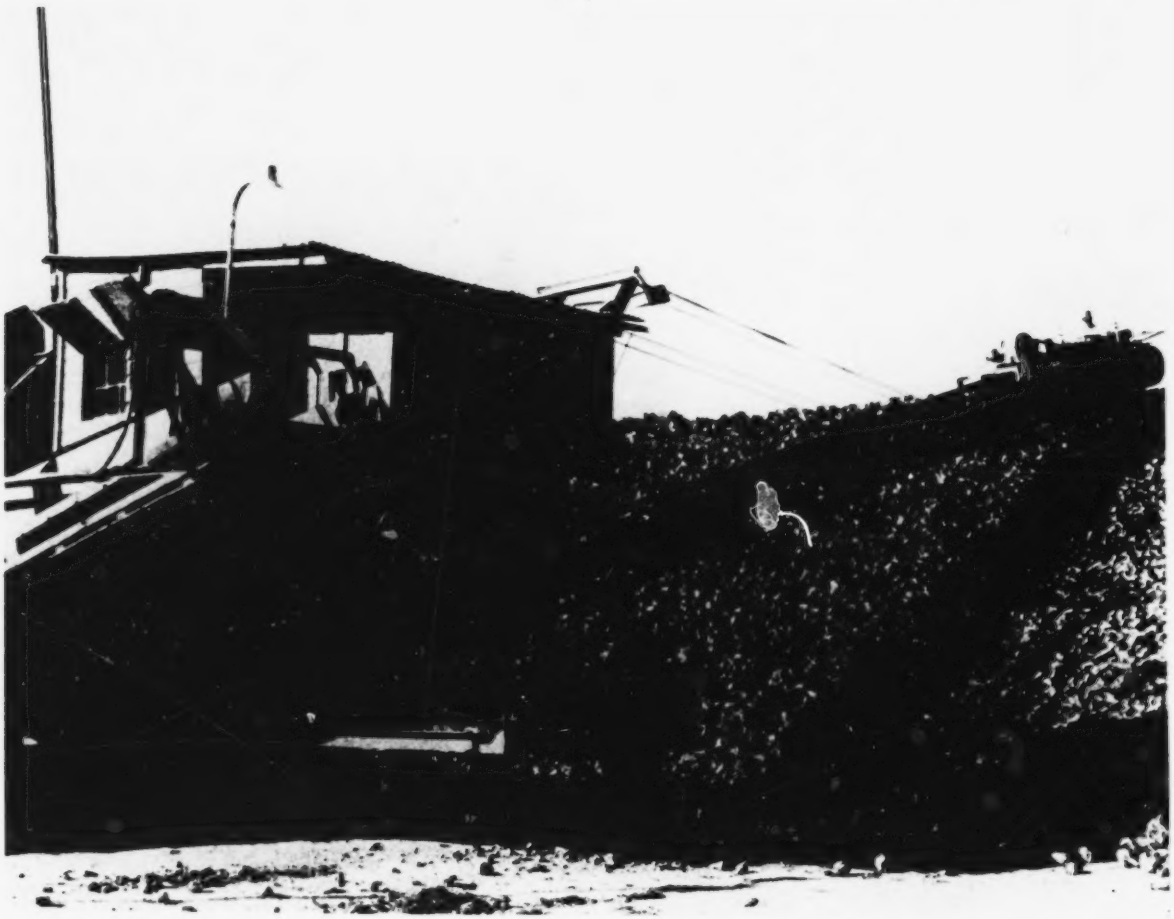


1/ Production costs per acre divided by receipts per acre.
Source: 1984 Farm Costs and Returns Survey.

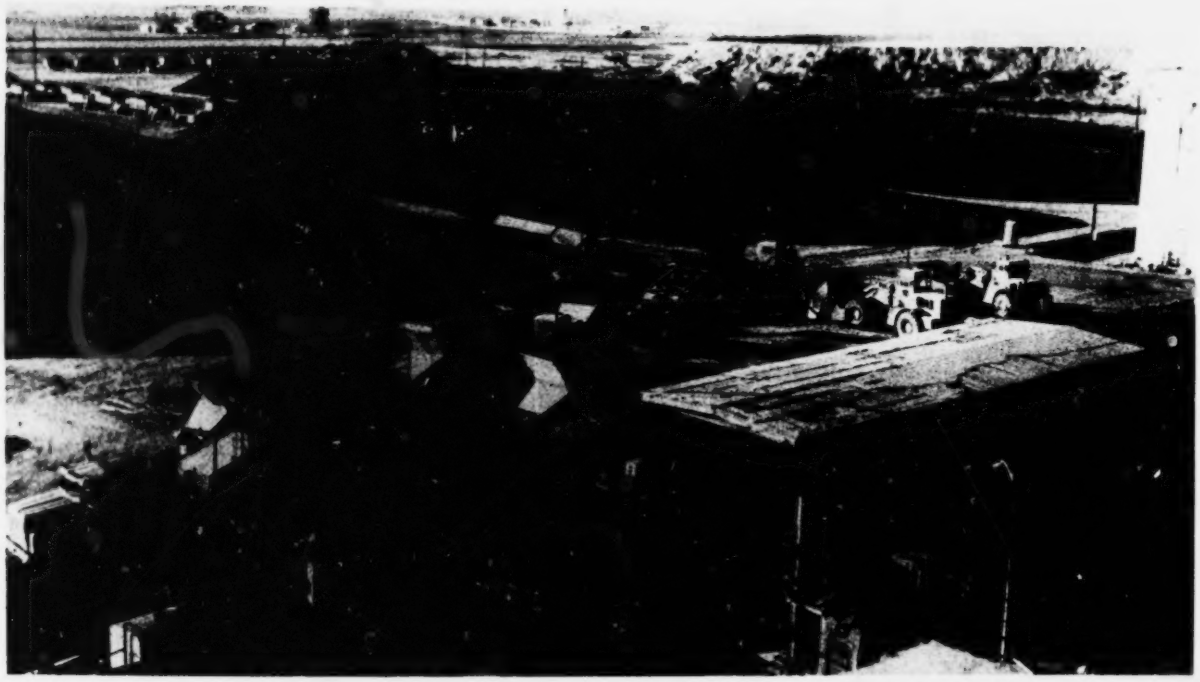
REGIONAL CHARACTERISTICS

The three sugar beet regions that accounted for more than 65 percent of total production exhibited widely varying financial characteristics in 1984. Producers in Minnesota and eastern North Dakota had the highest average net cash farm income of all regions, $43,609. California had the highest gross cash farm income, $375,196, but its extremely high cash operating expenses gave it the lowest net cash farm income, -$49,851. The Colorado, Nebraska, and southeastern Wyoming region received the lowest price per net ton, $23.30, but strong livestock sales kept the farm firms marginally profitable.

The following discussions present structural and financial characteristics of sugar beet operators in each of the surveyed production regions. (USDA's Farm Costs and Returns Survey did not cover sugar beet producers in region 4, Texas and New Mexico.)



Beet pilers, such as the one shown above in Idaho, are used to stack beets at receiving stations before the beets are transported by truck or rail to a processing factory. Receiving stations are usually located close to sugar beet farms.



Sugar beets are placed in large stacks near an Idaho processing plant, above. When needed by the factory, the beets are loaded into hopper cars and emptied into flumes, where they are washed, sliced, and processed into refined sugar. At another location of this factory, below, sugar beets are arriving by open railroad cars from distant farms. These beets are emptied directly into flumes.

Sugar Beet Production Region 1: Michigan and Ohio

Sugar beet region 1, mostly Michigan, accounted for 10.8 percent of the U.S. acres of sugar beets harvested in 1984. Those farms having the lowest cost per ton of beets produced had the highest net cash farm income despite having the highest cash operating expenses (table 20). Those farms having the highest cost per acre produced had the lowest nonfarm income (table 21). Those farms having the highest valued receipts per acre also had the lowest nonfarm income (table 22). The following facts pertain to this region's sugar beet production and cost levels:

- The 1984 support price or guaranteed payment level for this region was $27.79 per net ton, and the actual price received by the growers was $32.95 per net ton (fig. 7).
- Only 5 percent of the 1984 sugar beet crop was produced at a net loss (fig. 8).
- Individual farm firm production costs ranged from $14.53 to $44.69 per ton.
- The average cost of producing the 1984 sugar beet crop, weighted by acres planted, was $24.02 per ton (table 8).
- Producers operated an average of 534 acres total and harvested 85 acres of sugar beets (table 4).
- Beef production was the primary livestock enterprise reported with sales averaging $49,923 per farm (table 6).
- Sugar beet operators in this region reported average livestock sales of $55,144 and crop sales of $142,493. Gross cash farm income (the total of livestock and crop sales plus other farm-related income) averaged $208,690, with 26 percent of gross sales accounted for by sugar beets (table 12).
- Net worth (farm assets less farm debt) averaged $484,419 with an average debt/asset ratio of 41 percent (table 16).

Table 20--The effect of cost per ton of sugar beets produced on structural and economic characteristics in Region 1 in 1984

Item	Cost per ton of beets produced			
	Less than $25	$25 - $29	$30 - $39	$40 or more
Structural characteristics: 1/				
		Tons 2/		
Yield per acre	20	21	19	16
		Dollars 2/		
Cost per ton produced	19.25	27.21	32.65	43.39
Cost per acre produced	385.82	569.06	620.80	696.77
Receipts per acre	671.02	690.02	624.81	531.91
Variable costs	183.52	200.24	264.12	184.48
Economic characteristics:				
Total cash income--				
Livestock sales	163,843	34,453	22,701	0
+ Crop sales	212,228	129,464	112,842	129,201
+ Other farm income	12,404	12,368	4,849	20,709
= Gross cash farm income	388,475	176,285	140,392	149,910
- Cash operating expenses	316,612	158,606	138,899	156,789
= Net cash farm income	71,863	17,679	1,493	(6,879)
+ Nonfarm income	4,200	13,128	16,154	1,650
= Total cash income	76,063	30,807	17,647	(5,229)
Net worth--				
Land and buildings	563,045	632,131	568,317	750,000
+ Farm equipment	143,713	129,372	177,872	144,500
+ Livestock inventory	12,677	15,215	24,287	0
+ Crop inventory	34,937	36,236	28,357	33,743
+ Purchased inputs	12,043	4,850	1,968	6,000
= Farm assets	766,415	817,804	800,801	934,243
- Farm debt	323,323	204,302	354,537	655,500
= Net worth	443,092	613,502	446,264	278,743
		Percent 2/		
Debt/asset ratio	42	25	44	70

1/ Structural characteristics apply to sugar beet acres only.
2/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

Table 21--The effect of cost per acre of sugar beets produced on structural and economic characteristics in Region 1 in 1984

Item	Cost per acre of beets produced			
	Less than $400	$400 - $549	$550 - $699	$700 or more
Structural characteristics: 1/				
		Tons 2/		
Yield per acre	21	19	20	20
		Dollars 2/		
Cost per ton produced	16.34	24.95	29.35	38.49
Cost per acre produced	337.91	481.81	594.25	779.53
Receipts per acre	692.52	638.37	674.64	671.56
Variable costs	172.34	190.76	222.90	264.48
Economic characteristics:				
Total cash income--				
Livestock sales	221,020	21,816	40,400	621
+ Crop sales	162,380	180,819	121,723	114,340
+ Other farm income	5,618	12,160	11,569	12,672
= Gross cash farm income	389,018	214,795	173,692	127,633
- Cash operating expenses	315,593	218,042	152,178	107,493
= Net cash farm income	73,425	(3,247)	21,514	20,140
+ Nonfarm income	4,024	16,068	11,945	1,362
= Total cash income	77,449	12,821	33,459	21,502
Net worth--				
Land and buildings	367,932	564,387	711,593	600,000
+ Farm equipment	132,919	166,065	155,302	106,000
+ Livestock inventory	0	10,279	27,213	0
+ Crop inventory	18,333	48,957	36,604	906
+ Purchased inputs	3,771	9,759	3,788	6,000
= Farm assets	522,955	799,447	934,500	712,906
- Farm debt	227,232	438,222	303,096	312,500
= Net worth	295,723	361,225	631,404	400,406
		Percent 2/		
Debt/asset ratio	43	55	32	44

1/ Structural characteristics apply to sugar beet acres only.
2/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

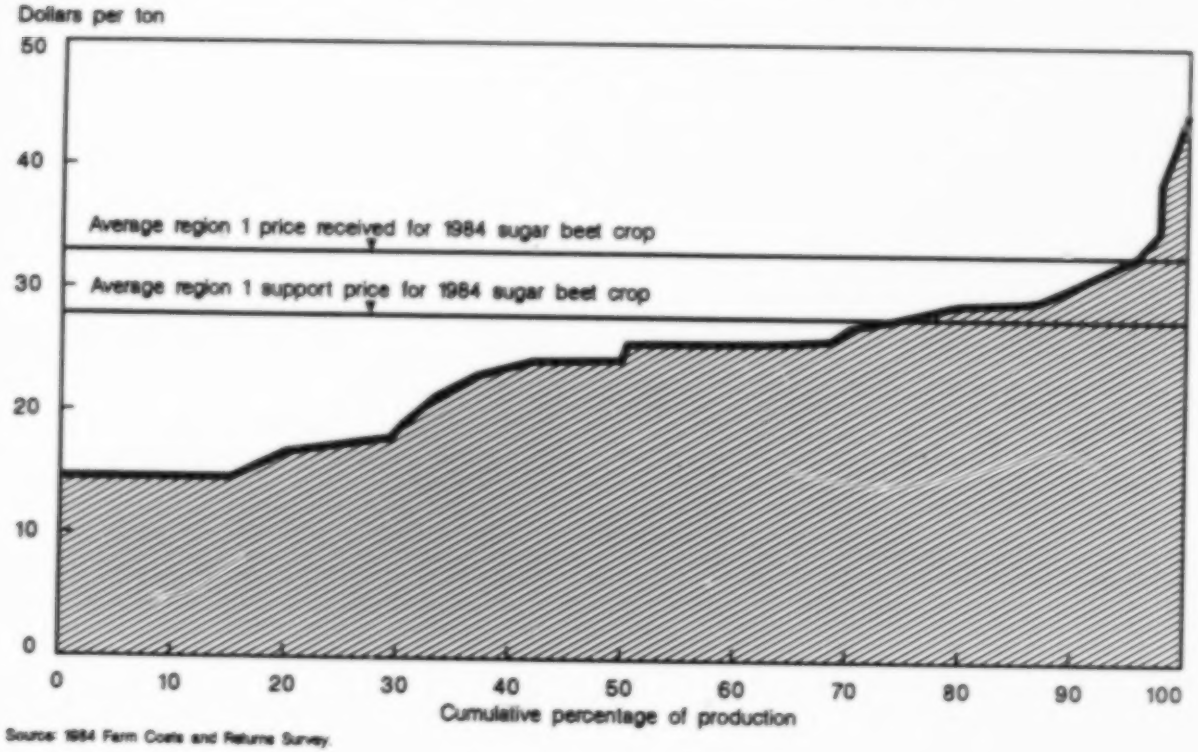
Table 22--The effect of value per acre of sugar beet receipts on structural and economic characteristics in Region 1 in 1984

Item	Value per acre of beet receipts			
	Less than $500	$500 - $599	$600 - $699	$700 or more
Structural characteristics: 1/				
		Tons 2/		
Yield per acre	N/A	17	20	23
		Dollars 2/		
Cost per ton produced	N/A	21.88	25.96	21.20
Cost per acre produced	N/A	380.52	513.87	486.79
Receipts per acre	N/A	574.05	651.31	771.21
Variable costs	N/A	179.69	201.08	205.91
Economic characteristics:				
Total cash income--				
Livestock sales	N/A	26	34,219	160,677
+ Crop sales	N/A	94,560	197,440	118,154
+ Other farm income	N/A	5,361	12,340	12,264
= Gross cash farm income	N/A	99,947	243,999	291,095
- Cash operating expenses	N/A	110,615	210,973	239,155
= Net cash farm income	N/A	(10,668)	33,026	51,940
+ Nonfarm income	N/A	19,938	8,748	4,701
= Total cash income	N/A	9,270	41,774	56,641
Net worth--				
Land and buildings	N/A	266,436	816,480	647,325
+ Farm equipment	N/A	113,774	206,277	93,819
+ Livestock inventory	N/A	60	27,293	20,363
+ Crop inventory	N/A	25,724	45,682	16,204
+ Purchased inputs	N/A	596	11,584	4,348
= Farm assets	N/A	406,590	1,107,316	782,059
- Farm debt	N/A	271,323	396,652	205,954
= Net worth	N/A	135,267	710,664	576,105
		Percent 2/		
Debt/asset ratio	N/A	67	36	26

N/A=Not available.
1/ Structural characteristics apply to sugar beet acres only.
2/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

Figure 7

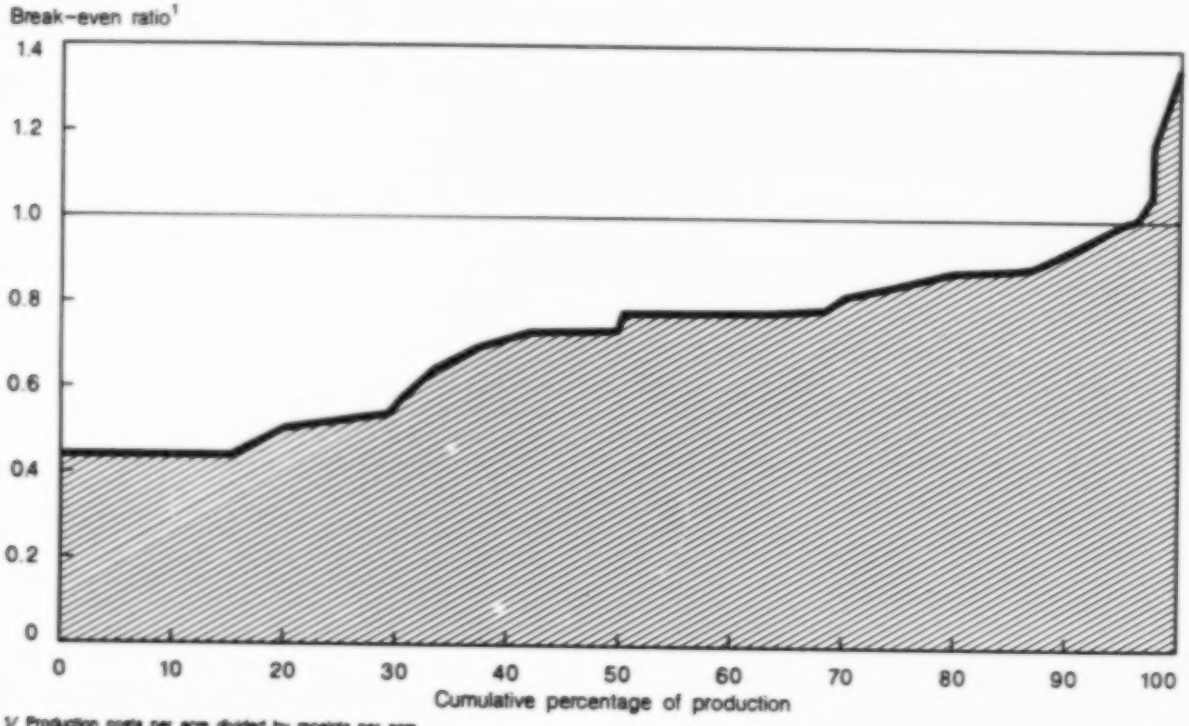
Region 1: Percentage of sugar beets produced at selected cost levels per ton, 1984



Source: 1984 Farm Costs and Returns Survey.

Figure 8

Region 1: Percentage of sugar beets produced at selected break-even ratios, 1984



1/ Production costs per acre divided by receipts per acre.
Source: 1984 Farm Costs and Returns Survey.

Sugar Beet Production Region 2: Minnesota and Eastern North Dakota

Sugar beet region 2 accounted for 35.2 percent of the U.S. acres of sugar beets in 1984. Those farms having the highest cost per ton of beets produced had the highest gross cash farm income but also had the highest cash operating expenses resulting in a negative net cash farm income (table 23). Those farms having the lowest cost per acre produced had the largest net cash farm income and total cash income (table 24). Those farms having the highest valued receipts per acre also had the highest nonfarm income (table 25). The following facts pertain to this region's production and cost levels:

- The 1984 support price or guaranteed payment level for this region was $32.24 per net ton, and the actual price received by the growers was $36 per net ton (fig. 9).
- More than 90 percent of the 1984 sugar beet crop was produced at a net profit (fig. 10).
- Individual farm firm production costs ranged from $12.17 to $55.22 per ton.
- The average cost of producing the 1984 sugar beet crop, weighted by acres planted, was estimated at $25.66 per ton (table 8).
- Producers operated an average of 1,269 acres total and harvested 222 acres of sugar beets (table 4).
- Hog production was the primary livestock enterprise reported with sales averaging $11,433 per farm (table 6).
- Sugar beet operators in this region reported average livestock sales of $21,363 and crop sales of $232,462. Gross cash farm income (the total of livestock and crop sales plus other farm-related income) averaged $278,623 with 48 percent of gross sales accounted for by sugar beets (table 12).
- Net worth (farm assets less farm debt) averaged $534,117 with an average debt/asset ratio of 35 percent (table 16).

Table 23--The effect of cost per ton of sugar beets produced on structural and economic characteristics in Region 2 in 1984

Item	Cost per ton of beets produced			
	Less than $25	$25 - $29	$30 - $39	$40 or more
Structural characteristics: 1/				
		Tons 2/		
Yield per acre	18	16	16	14
		Dollars 2/		
Cost per ton produced	20.31	27.08	33.44	43.65
Cost per acre produced	355.15	441.21	509.96	605.04
Receipts per acre	637.95	586.14	549.16	492.66
Variable costs	149.99	191.03	211.89	207.14
Economic characteristics:				
Total cash income--				
Livestock sales	22,989	14,513	30,287	0
+ Crop sales	243,737	250,023	175,578	291,490
+ Other farm income	26,754	15,380	23,190	80,121
= Gross cash farm income	293,480	279,916	229,055	371,611
- Cash operating expenses	212,285	246,653	243,035	387,608
= Net cash farm income	81,195	33,263	(13,980)	(15,997)
+ Nonfarm income	3,081	2,720	3,665	20,012
= Total cash income	84,276	35,983	(10,315)	4,015
Net worth--				
Land and buildings	416,482	534,551	454,150	1,055,521
+ Farm equipment	223,074	208,227	206,988	381,776
+ Livestock inventory	9,986	9,471	33,228	0
+ Crop inventory	105,417	106,671	69,103	254,218
+ Purchased inputs	7,689	5,339	6,760	4,423
= Farm assets	762,648	864,259	770,229	1,695,938
- Farm debt	200,095	323,534	343,517	941,522
= Net worth	562,553	540,725	426,712	754,416
		Percent 2/		
Debt/asset ratio	26	37	45	56

1/ Structural characteristics apply to sugar beet acres only.
2/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

Table 24--The effect of cost per acre of sugar beets produced on structural and economic characteristics in Region 2 in 1984

Item	Cost per acre of beets produced			
	Less than $400	$400 - $549	$550 - $699	$700 or more
Structural characteristics: 1/				
		Tons 2/		
Yield per acre	16	17	17	N/A
		Dollars 2/		
Cost per ton produced	21.60	28.43	35.84	N/A
Cost per acre produced	344.46	465.83	591.27	N/A
Receipts per acre	587.01	605.19	601.94	N/A
Variable costs	147.29	196.92	238.07	N/A
Economic characteristics:				
Total cash income--				
Livestock sales	23,120	11,856	52,112	N/A
+ Crop sales	242,186	226,856	208,293	N/A
+ Other farm income	29,585	17,047	30,190	N/A
= Gross cash farm income	294,891	255,759	290,595	N/A
- Cash operating expenses	223,079	215,427	328,382	N/A
= Net cash farm income	71,812	40,332	(37,787)	N/A
+ Nonfarm income	3,193	2,044	12,004	N/A
= Total cash income	75,005	42,376	(25,783)	N/A
Net worth--				
Land and buildings	400,887	508,619	641,658	N/A
+ Farm equipment	222,593	207,939	252,192	N/A
+ Livestock inventory	10,946	7,672	55,321	N/A
+ Crop inventory	107,711	82,957	137,346	N/A
+ Purchased inputs	8,337	5,548	5,406	N/A
= Farm assets	750,474	812,735	1,091,923	N/A
- Farm debt	216,001	286,924	528,470	N/A
= Net worth	534,473	525,811	563,453	N/A
		Percent 2/		
Debt/asset ratio	29	35	48	N/A

N/A=Not available.
1/ Structural characteristics apply to sugar beet acres only.
2/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

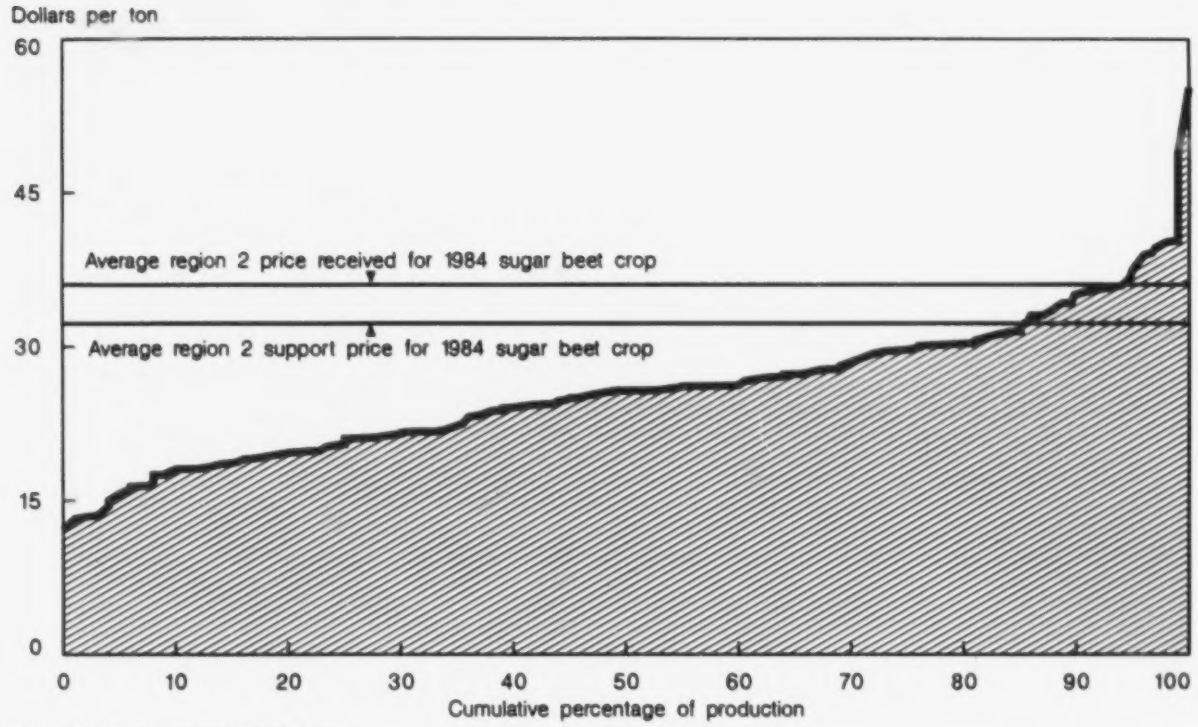
Table 25--The effect of value per acre of sugar beet receipts on structural and economic characteristics in Region 2 in 1984

Item	Value per acre of beet receipts			
	Less than $500	$500 - $599	$600 - $699	$700 or more
Structural characteristics: 1/				
		Tons 2/		
Yield per acre	13	15	18	21
		Dollars 2/		
Cost per ton produced	33.86	27.02	25.24	21.30
Cost per acre produced	429.61	407.16	445.10	440.64
Receipts per acre	457.68	544.20	638.05	756.72
Variable costs	169.42	170.00	196.27	173.48
Economic characteristics:				
Total cash income--				
Livestock sales	7,857	1,954	52,333	16,609
+ Crop sales	151,578	244,414	220,897	284,460
+ Other farm income	26,567	36,698	13,703	17,044
= Gross cash farm income	186,002	283,066	286,933	318,113
- Cash operating expenses	197,690	221,175	256,798	251,954
= Net cash farm income	(11,688)	61,891	30,135	66,159
+ Nonfarm income	2,513	4,737	2,341	4,956
= Total cash income	(9,175)	66,628	32,476	71,115
Net worth--				
Land and buildings	373,547	437,404	496,042	632,170
+ Farm equipment	175,701	229,821	207,193	261,383
+ Livestock inventory	8,512	2,196	33,777	10,436
+ Crop inventory	72,767	104,105	95,993	137,978
+ Purchased inputs	4,061	7,799	3,845	11,616
= Farm assets	634,588	781,325	836,850	1,053,583
- Farm debt	274,087	271,140	301,358	341,931
= Net worth	360,501	510,185	535,492	711,652
		Percent 2/		
Debt/asset ratio	43	35	36	32

1/ Structural characteristics apply to sugar beet acres only.
2/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

Figure 9

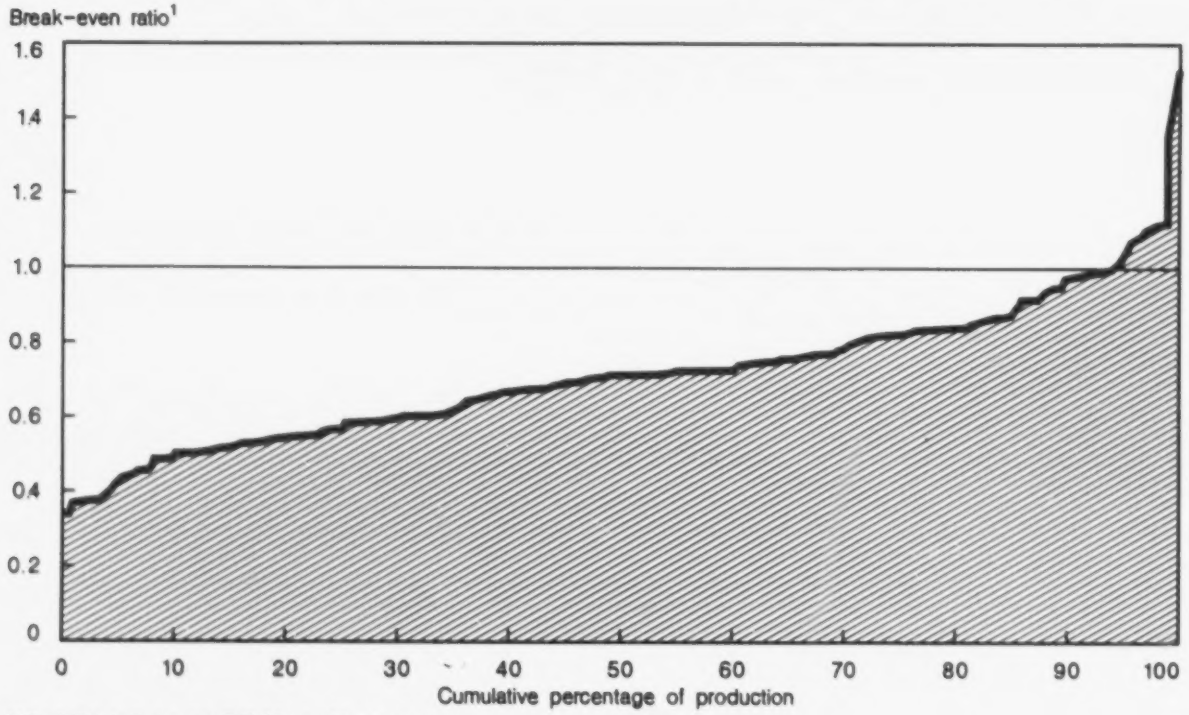
Region 2: Percentage of sugar beets produced at selected cost levels per ton, 1984



Source: 1984 Farm Costs and Returns Survey.

Figure 10

Region 2: Percentage of sugar beets produced at selected break-even ratios, 1984



1/ Production costs per acre divided by receipts per acre.
Source: 1984 Farm Costs and Returns Survey.

Sugar Beet Production Region 3: Colorado, Nebraska, and Southeastern Wyoming

Sugar beet region 3 accounted for 12.8 percent of the U.S. acres of sugar beets in 1984. Those farms having the lowest cost per ton of beets produced had the highest livestock and crop sales (table 26). Those farms having the lowest cost per acre produced had the highest total cash income despite having the highest cash operating expenses (table 27). Those farms having the lowest valued receipts per acre had insufficient beet receipts to pay for their production costs (table 28). The following facts pertain to this region's production and cost levels:

- The 1984 support price or guaranteed payment level for this region was $31.23 per net ton, and the actual price received by the growers was $23.30 per net ton (fig. 11).
- Almost 90 percent of the 1984 sugar beet crop was produced at a net loss, largely due to the default of the Great Western Sugar Company and the sharply reduced payments to the growers (fig. 12).
- Individual farm firm production costs ranged from $15.37 to $115.70 per ton.
- The average cost of producing the 1984 sugar beet crop, weighted by acres planted, was estimated at $28.06 per ton (table 8).
- Producers operated an average of 795 acres total in 1984 and harvested 117 acres of sugar beets (table 4).
- Beef production was the primary livestock enterprise reported with sales averaging $77,555 per farm (table 6).
- Sugar beet operators in this region reported average livestock sales of $81,417 and crop sales of $108,773. Gross cash farm income (the total of livestock and crop sales plus other farm-related income) averaged $199,595, with 29 percent of gross sales accounted for by sugar beets (table 12).
- Net worth (farm assets less farm debt) averaged $341,292 with an average debt/asset ratio of 38 percent (table 16).

Table 26--The effect of cost per ton of sugar beets produced on structural and economic characteristics in Region 3 in 1984

Item	Cost per ton of beets produced			
	Less than $25	$25 - $29	$30 - $39	$40 or more
Structural characteristics: 1/		Tons 2/		
Yield per acre	23	21	19	17
		Dollars 2/		
Cost per ton produced	20.94	27.44	33.96	56.44
Cost per acre produced	490.63	578.63	615.87	598.93
Receipts per acre	512.88	497.41	428.69	286.11
Variable costs	206.58	213.23	245.67	248.45
Economic characteristics:				
Total cash income--				
Livestock sales	142,472	22,514	58,118	41,056
+ Crop sales	141,995	106,336	58,559	129,326
+ Other farm income	10,611	7,522	5,915	32,417
= Gross cash farm income	295,078	136,372	122,592	202,799
- Cash operating expenses	223,277	160,013	176,182	175,841
= Net cash farm income	71,801	(23,641)	(53,590)	26,958
+ Nonfarm income	3,051	3,993	2,021	2,038
= Total cash income	74,852	(19,648)	(51,569)	28,996
Net worth--				
Land and buildings	307,168	289,525	238,317	372,275
+ Farm equipment	158,880	149,091	126,601	125,186
+ Livestock inventory	64,736	81,160	39,609	127,952
+ Crop inventory	62,121	26,159	48,232	53,556
+ Purchased inputs	1,763	3,065	1,546	227
= Farm assets	594,668	549,000	454,305	679,196
- Farm debt	198,844	172,196	233,108	324,702
= Net worth	395,824	376,804	221,197	354,494
		Percent 2/		
Debt/asset ratio	33	31	51	48

1/ Structural characteristics apply to sugar beet acres only.
2/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

Table 27--The effect of cost per acre of sugar beets produced on structural and economic characteristics in Region 3 in 1984

Item	Cost per acre of beets produced			
	Less than $400	$400 - $549	$550 - $699	$700 or more
Structural characteristics: 1/				
		Tons 2/		
Yield per acre	18	19	23	23
		Dollars 2/		
Cost per ton produced	25.75	29.05	28.28	34.41
Cost per acre produced	302.18	488.84	622.10	771.93
Receipts per acre	281.06	430.46	537.29	534.25
Variable costs	134.79	196.61	242.28	294.67
Economic characteristics:				
Total cash income--				
Livestock sales	104,199	180,586	23,060	38,270
+ Crop sales	283,714	76,764	97,505	108,188
+ Other farm income	42,782	6,414	6,819	3,953
= Gross cash farm income	430,695	263,764	127,384	150,411
- Cash operating expenses	314,565	248,251	140,862	149,010
= Net cash farm income	116,130	15,513	(13,478)	1,401
+ Nonfarm income	4,222	3,667	2,621	1,972
= Total cash income	120,352	19,180	(10,857)	3,373
Net worth--				
Land and buildings	429,684	314,007	223,135	339,478
+ Farm equipment	306,890	121,139	137,272	129,875
+ Livestock inventory	167,942	59,896	63,882	19,447
+ Crop inventory	125,925	43,943	43,817	22,239
+ Purchased inputs	4,656	567	2,957	511
= Farm assets	1,035,097	539,552	471,063	511,550
- Farm debt	304,635	262,666	142,965	223,578
= Net worth	730,462	276,886	328,098	287,972
		Percent 2/		
Debt/asset ratio	29	49	30	44

1/ Structural characteristics apply to sugar beet acres only.
2/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

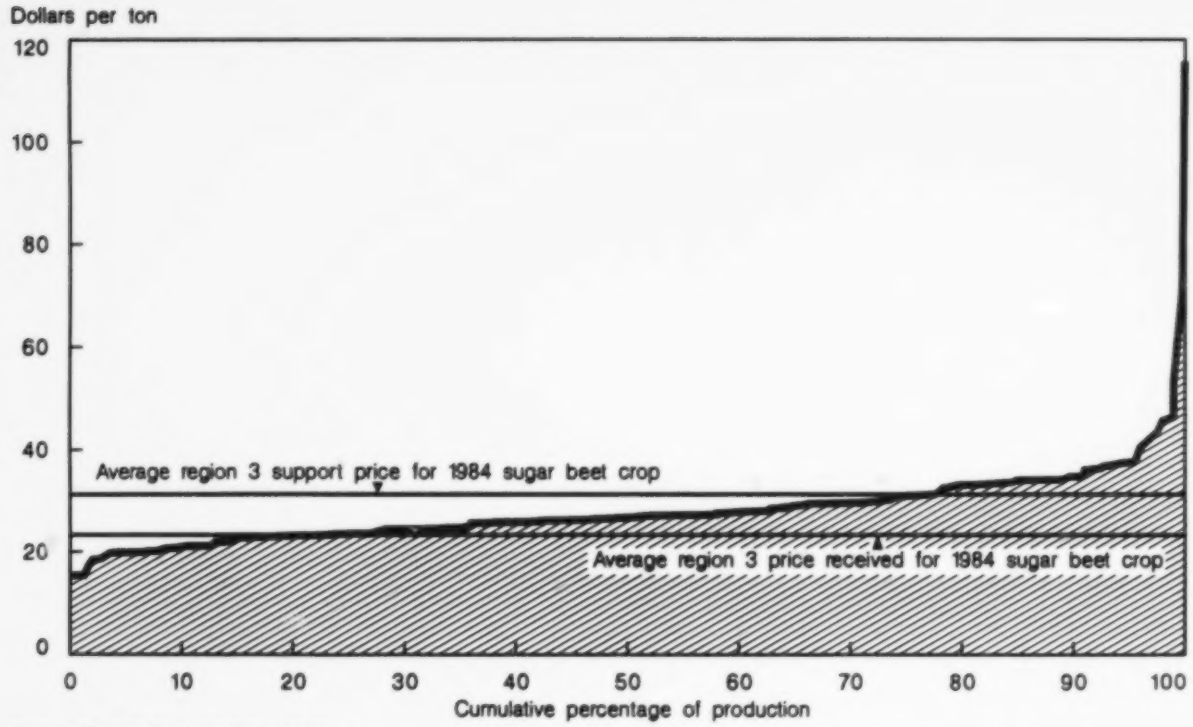
Table 28--The effect of value per acre of sugar beet receipts on structural and economic characteristics in Region 3 in 1984

Item	Value per acre of beet receipts			
	Less than $500	$500 - $599	$600 - $699	$700 or more
Structural characteristics: 1/				
		Tons 2/		
Yield per acre	18	23	27	N/A
		Dollars 2/		
Cost per ton produced	31.49	27.82	23.35	N/A
Cost per acre produced	483.43	642.86	627.13	N/A
Receipts per acre	373.39	542.93	631.63	N/A
Variable costs	194.71	243.95	261.55	N/A
Economic characteristics:				
Total cash income--				
Livestock sales	64,553	129,146	15,606	N/A
+ Crop sales	105,265	97,586	139,125	N/A
+ Other farm income	13,302	7,056	4,855	N/A
= Gross cash farm income	183,120	233,788	159,586	N/A
- Cash operating expenses	196,342	216,116	118,162	N/A
= Net cash farm income	(13,222)	17,672	41,424	N/A
+ Nonfarm income	3,603	1,724	4,376	N/A
= Total cash income	(9,619)	19,396	45,800	N/A
Net worth--				
Land and buildings	290,126	331,117	178,107	N/A
+ Farm equipment	160,055	148,515	102,054	N/A
+ Livestock inventory	75,801	72,577	19,192	N/A
+ Crop inventory	65,543	46,049	8,458	N/A
+ Purchased inputs	1,743	2,793	915	N/A
= Farm assets	593,268	601,051	308,726	N/A
- Farm debt	239,616	206,565	123,355	N/A
= Net worth	353,652	394,486	185,371	N/A
		Percent 2/		
Debt/asset ratio	40	34	40	N/A

N/A=Not available.
1/ Structural characteristics apply to sugar beet acres only.
2/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

Figure 11

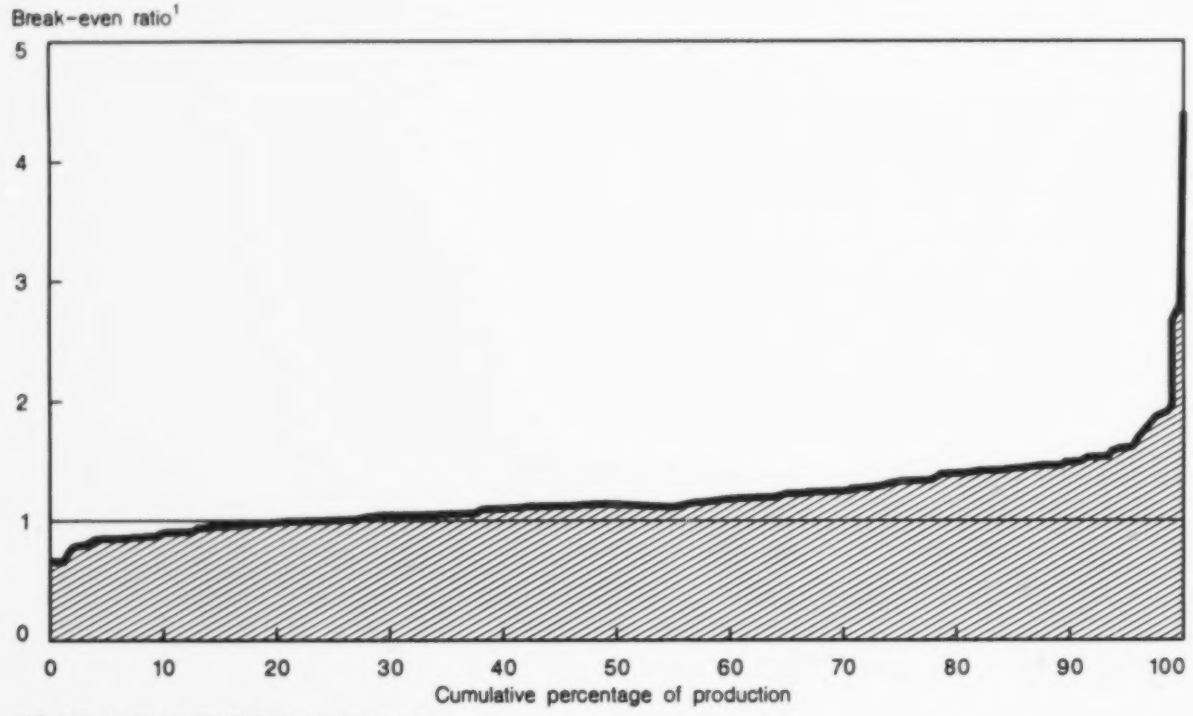
Region 3: Percentage of sugar beets produced at selected cost levels per ton, 1984



Source: 1984 Farm Costs and Returns Survey.

Figure 12

Region 3: Percentage of sugar beets produced at selected break-even ratios, 1984



1/ Production costs per acre divided by receipts per acre.
Source: 1984 Farm Costs and Returns Survey.

Sugar Beet Production Region 5: Montana, Northwestern Wyoming, and Northwestern North Dakota

Sugar beet region 5 accounted for 5 percent of the U.S. acres of sugar beets in 1984. Those farms having the lowest cost per ton of beets produced had a positive total cash income despite not having any nonfarm income (table 29). Those farms having the highest cost per acre produced also had the highest yield and highest receipts per acre (table 30). Those farms having the lowest valued receipts per acre also had a negative total cash income despite having the highest nonfarm income (table 31). The following facts pertain to this region's production and cost levels:

- The 1984 support price or guaranteed payment level for this region was $31.37 per net ton, and the actual price received by the growers was $35.40 per net ton (fig. 13).
- Over 50 percent of the 1984 sugar beet crop was produced at a net profit (fig. 14).
- Individual farm firm production costs ranged from $17.04 to $63.61 per ton.
- The average cost of producing the 1984 sugar beet crop, weighted by acres planted, was estimated at $34.26 per ton (table 8).
- Producers operated an average of 807 acres total in 1984 and harvested 158 acres of sugar beets (table 4).
- Beef production was the primary livestock enterprise reported with sales averaging $21,566 per farm (table 6).
- Sugar beet operators in this region reported average livestock sales of $27,924 and crop sales of $122,336. Gross cash farm income (the total of livestock and crop sales plus other farm-related income) averaged $157,950, with 66 percent of gross sales accounted for by sugar beets (table 12).
- Net worth (farm assets less farm debt) averaged $354,293 with an average debt/asset ratio of 33 percent (table 16).

Table 29--The effect of cost per ton of sugar beets produced on structural and economic characteristics in Region 5 in 1984

Item	Cost per ton of beets produced			
	Less than $25	$25 - $29	$30 - $39	$40 or more
Structural characteristics: 1/				
		Tons 2/		
Yield per acre	24	19	18	16
		Dollars 2/		
Cost per ton produced	22.88	28.09	35.83	46.29
Cost per acre produced	523.25	543.18	649.91	692.45
Receipts per acre	844.84	689.22	649.14	537.55
Variable costs	186.99	228.16	265.94	296.43
Economic characteristics:				
Total cash income--				
Livestock sales	39,203	41,220	18,356	21,007
+ Crop sales	104,130	142,957	127,711	104,194
+ Other farm income	1,308	10,612	9,017	7,286
= Gross cash farm income	144,641	194,789	155,084	132,487
- Cash operating expenses	113,728	160,103	134,868	139,741
= Net cash farm income	30,913	34,686	20,216	(7,254)
+ Nonfarm income	0	2,062	4,659	3,572
= Total cash income	30,913	36,748	24,875	(3,682)
Net worth--				
Land and buildings	141,020	330,095	290,182	396,277
+ Farm equipment	206,232	160,045	166,976	195,211
+ Livestock inventory	55,140	55,072	12,717	47,424
+ Crop inventory	11,430	14,236	17,460	8,204
+ Purchased inputs	50	656	1,101	3,050
= Farm assets	413,872	560,104	488,436	650,166
- Farm debt	54,311	107,634	237,267	226,072
= Net worth	359,561	452,470	251,169	424,094
		Percent 2/		
Debt/asset ratio	13	19	49	35

1/ Structural characteristics apply to sugar beet acres only.
2/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

Table 30--The effect of cost per acre of sugar beets produced on structural and economic characteristics in Region 5 in 1984

Item	Cost per acre of beets produced			
	Less than $400	$400 - $549	$550 - $699	$700 or more
Structural characteristics: 1/				
		Tons 2/		
Yield per acre	N/A	19	17	22
		Dollars 2/		
Cost per ton produced	N/A	28.73	36.95	39.39
Cost per acre produced	N/A	502.29	617.95	800.25
Receipts per acre	N/A	646.33	611.83	764.74
Variable costs	N/A	210.25	259.29	321.77
Economic characteristics:				
Total cash income--				
Livestock sales	N/A	47,876	25,521	2,474
+ Crop sales	N/A	113,876	130,977	115,405
+ Other farm income	N/A	9,746	7,865	3,486
= Gross cash farm income	N/A	171,498	164,363	121,365
- Cash operating expenses	N/A	154,508	134,686	120,262
= Net cash farm income	N/A	16,990	29,677	1,103
+ Nonfarm income	N/A	2,169	3,759	2,379
= Total cash income	N/A	19,159	33,436	3,482
Net worth--				
Land and buildings	N/A	329,509	300,095	194,383
+ Farm equipment	N/A	188,525	179,711	157,559
+ Livestock inventory	N/A	60,971	32,226	12,565
+ Crop inventory	N/A	16,154	14,195	6,378
+ Purchased inputs	N/A	530	1,127	2,642
= Farm assets	N/A	595,689	527,354	373,527
- Farm debt	N/A	112,156	195,372	204,594
= Net worth	N/A	483,533	331,982	168,933
		Percent 2/		
Debt/asset ratio	N/A	19	37	55

N/A=Not available.
1/ Structural characteristics apply to sugar beet acres only.
2/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

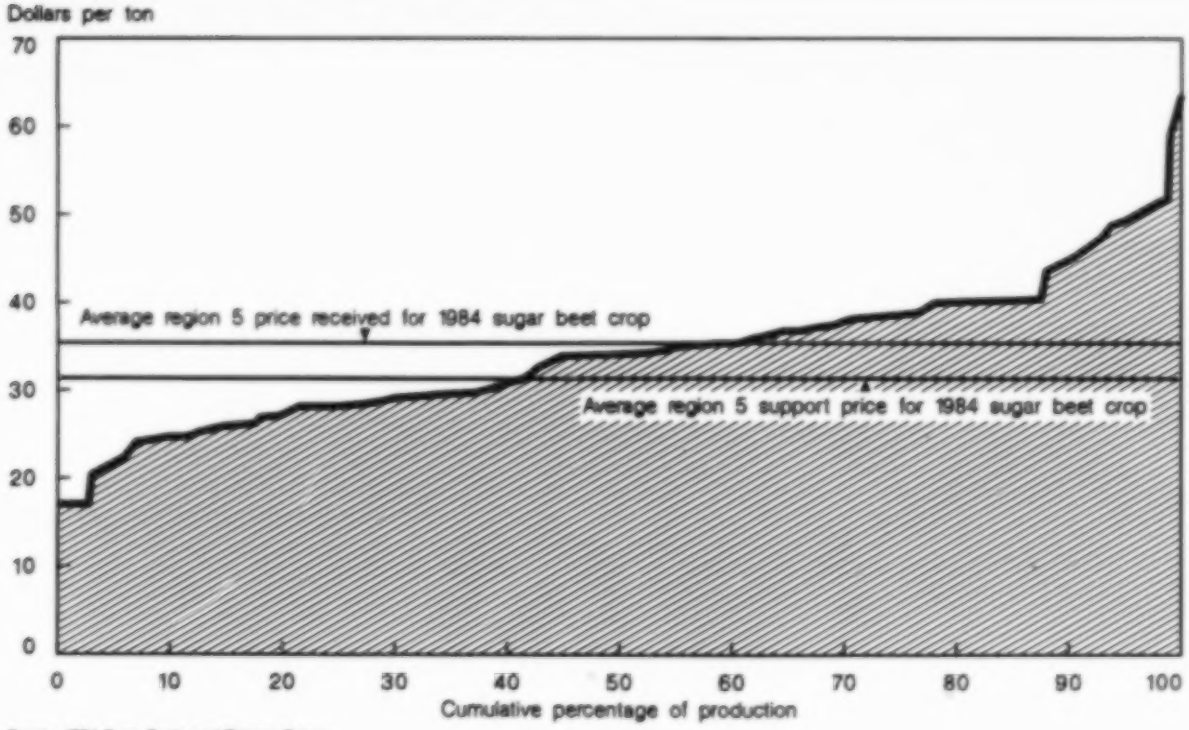
Table 31--The effect of value per acre of sugar beet receipts on structural and economic characteristics in Region 5 in 1984

Item	Value per acre of beet receipts			
	Less than $500	$500 - $599	$600 - $699	$700 or more
Structural characteristics: 1/				
		Tons 2/		
Yield per acre	12	16	18	24
		Dollars 2/		
Cost per ton produced	47.68	40.68	33.64	29.05
Cost per acre produced	519.07	654.98	608.07	674.81
Receipts per acre	382.92	571.45	641.88	841.75
Variable costs	195.71	283.35	261.29	258.01
Economic characteristics:				
Total cash income--				
Livestock sales	10,003	18,890	36,102	29,285
+ Crop sales	94,648	113,322	134,241	120,320
+ Other farm income	16,348	11,772	6,511	3,382
= Gross cash farm income	120,999	143,984	176,854	152,987
- Cash operating expenses	131,229	133,321	151,759	124,618
= Net cash farm income	(10,230)	10,663	25,095	28,369
+ Nonfarm income	9,014	2,802	3,416	1,011
= Total cash income	(1,216)	13,465	28,511	29,380
Net worth--				
Land and buildings	557,550	319,295	330,843	154,451
+ Farm equipment	173,348	179,694	193,897	154,381
+ Livestock inventory	3,378	41,894	40,482	37,755
+ Crop inventory	7,945	22,696	15,776	3,723
+ Purchased inputs	2,351	2,095	1,218	99
= Farm assets	744,572	565,674	582,216	350,409
- Farm debt	338,159	223,385	156,800	103,289
= Net worth	406,413	342,289	425,416	247,120
		Percent 2/		
Debt/asset ratio	45	39	27	29

1/ Structural characteristics apply to sugar beet acres only.
2/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

Figure 13

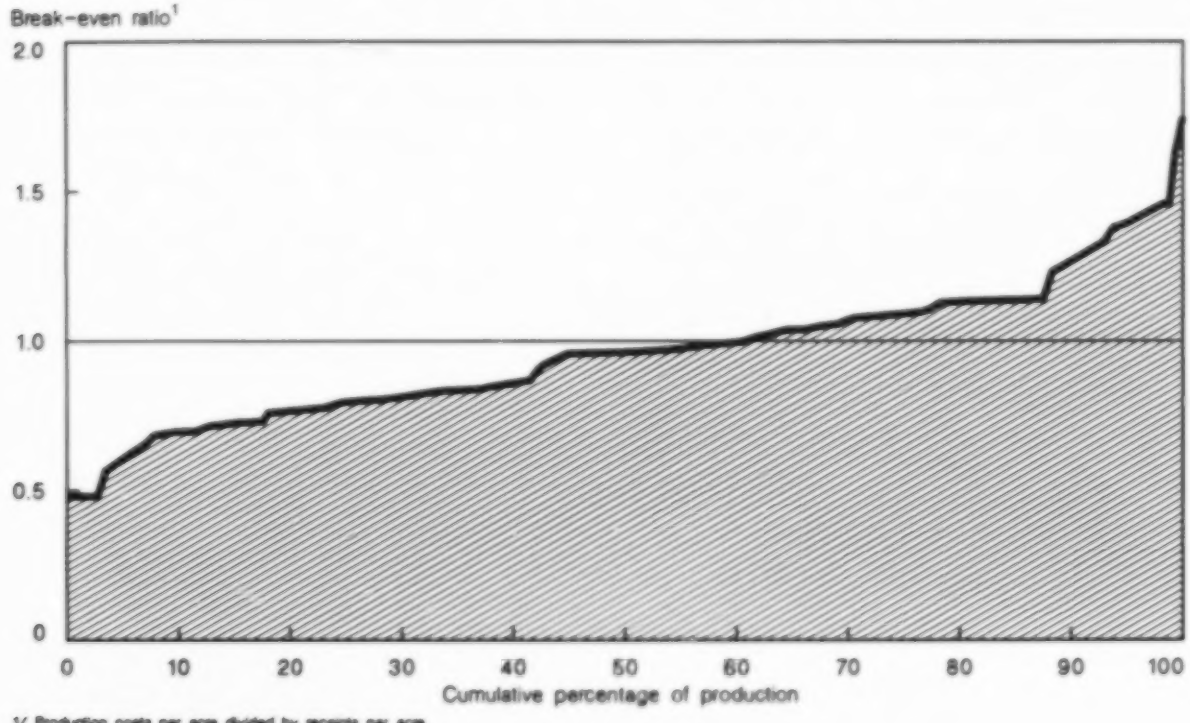
Region 5: Percentage of sugar beets produced at selected cost levels per ton, 1984



Source: 1984 Farm Costs and Returns Survey

Figure 14

Region 5: Percentage of sugar beets produced at selected break-even ratios, 1984



1/ Production costs per acre divided by receipts per acre.
Source: 1984 Farm Costs and Returns Survey

Sugar Beet Production Region 6: Eastern Idaho

Sugar beet region 6 accounted for 7.4 percent of the U.S. acres of sugar beets in 1984. Those farms having the lowest cost per ton of beets produced had the largest livestock and crop sales resulting in the largest net cash farm income (table 32). Those farms having the highest cost per acre produced also had the highest debt/asset ratio (table 33). Those farms having the highest valued receipts per acre also had the lowest net cash farm income (table 34). The following facts pertain to this region's production and cost levels:

- The 1984 support price or guaranteed payment level for this region was $31.05 per net ton, and the actual price received by the growers was $37.10 per net ton (fig. 15).
- Over 40 percent of the 1984 sugar beet crop was produced at a net loss (fig. 16).
- Individual farm firm production costs ranged from $17.46 to $51.74 per ton.
- The average cost of producing the 1984 sugar beet crop, weighted by acres planted, was estimated at $34.87 per ton (table 8).
- Producers operated an average of 359 acres total in 1984 and harvested 72 acres of sugar beets (table 4).
- Beef production was the primary livestock enterprise reported with sales averaging $2,912 per farm (table 6).
- Sugar beet operators in this region reported average livestock sales of $4,284 and crop sales of $96,539. Gross cash farm income (the total of livestock and crop sales plus other farm-related income) averaged $104,620, with 53 percent of gross sales accounted for by sugar beets (table 12).
- Net worth (farm assets less farm debt) averaged $127,848 with an average debt/asset ratio of 40 percent (table 16).

Table 32--The effect of cost per ton of sugar beets produced on structural and economic characteristics in Region 6 in 1984

Item	Cost per ton of beets produced			
	Less than $25	$25 - $29	$30 - $39	$40 or more
Structural characteristics: 1/				
		Tons 2/		
Yield per acre	24	21	19	22
		Dollars 2/		
Cost per ton produced	21.55	27.70	35.34	43.74
Cost per acre produced	525.80	596.32	659.58	940.63
Receipts per acre	902.74	799.16	693.83	800.86
Variable costs	246.26	238.54	267.38	323.28
Economic characteristics:				
Total cash income--				
Livestock sales	43,450	9,660	4,537	2,176
+ Crop sales	584,659	294,139	90,317	54,311
+ Other farm income	3,043	13,036	3,544	2,221
= Gross cash farm income	631,152	316,835	98,398	58,708
- Cash operating expenses	365,316	228,713	77,392	51,027
= Net cash farm income	265,836	88,122	21,006	7,681
+ Nonfarm income	4,499	899	497	728
= Total cash income	270,335	89,021	21,503	8,409
Net worth--				
Land and buildings	1,618,787	633,914	98,582	48,699
+ Farm equipment	327,793	202,354	70,497	32,497
+ Livestock inventory	62	10,511	3,671	3,990
+ Crop inventory	70,766	13,468	4,607	3,129
+ Purchased inputs	6,183	7,112	555	305
= Farm assets	2,023,591	867,359	177,912	88,620
- Farm debt	81,672	411,565	67,943	41,189
= Net worth	1,941,919	455,794	109,969	47,431
		Percent 2/		
Debt/asset ratio	4	47	38	46

1/ Structural characteristics apply to sugar beet acres only.
2/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

Table 33--The effect of cost per acre of sugar beets produced on structural and economic characteristics in Region 6 in 1984

Item	Cost per acre of beets produced			
	Less than $400	$400 - $549	$550 - $699	$700 or more
Structural characteristics: 1/				
		Tons 2/		
Yield per acre	N/A	19	20	22
		Dollars 2/		
Cost per ton produced	N/A	27.60	31.56	39.79
Cost per acre produced	N/A	468.91	607.65	853.28
Receipts per acre	N/A	664.28	730.83	800.61
Variable costs	N/A	197.00	265.84	305.78
Economic characteristics:				
Total cash income--				
Livestock sales	N/A	16,773	3,260	4,487
+ Crop sales	N/A	318,157	89,138	90,639
+ Other farm income	N/A	30,607	2,233	3,671
= Gross cash farm income	N/A	365,537	94,631	98,797
- Cash operating expenses	N/A	218,267	73,395	81,038
= Net cash farm income	N/A	147,270	21,236	17,759
+ Nonfarm income	N/A	1,501	234	991
= Total cash income	N/A	148,771	21,470	18,750
Net worth--				
Land and buildings	N/A	412,916	72,703	175,672
+ Farm equipment	N/A	183,683	65,298	63,423
+ Livestock inventory	N/A	1,468	3,228	5,535
+ Crop inventory	N/A	15,721	2,901	6,772
+ Purchased inputs	N/A	1,090	966	1,142
= Farm assets	N/A	614,878	145,096	252,544
- Farm debt	N/A	162,464	54,114	110,441
= Net worth	N/A	452,414	90,982	142,103
		Percent 2/		
Debt/asset ratio	N/A	26	37	44

N/A=Not available.
1/ Structural characteristics apply to sugar beet acres only.
2/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

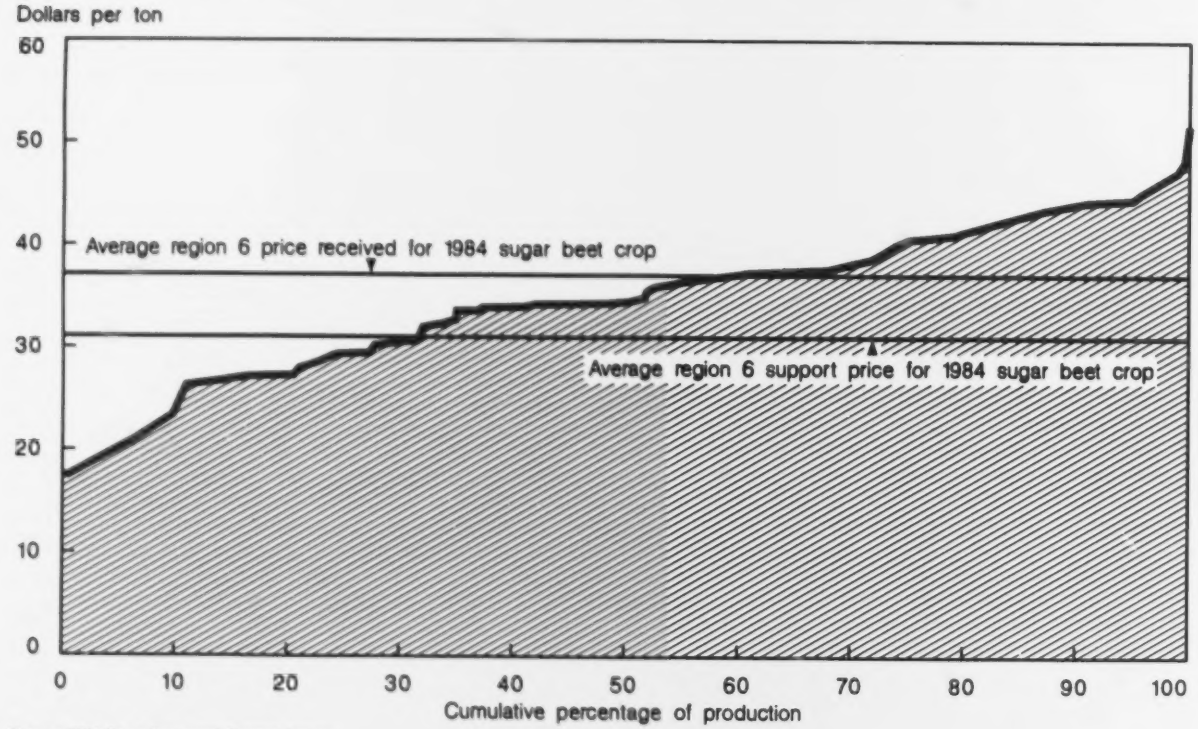
Table 34--The effect of value per acre of sugar beet receipts on structural and economic characteristics in Region 6 in 1984

Item	Value per acre of beet receipts			
	Less than $500	$500 - $599	$600 - $699	$700 or more
Structural characteristics: 1/				
		Tons 2/		
Yield per acre	N/A	15	17	22
		Dollars 2/		
Cost per ton produced	N/A	38.06	33.08	35.34
Cost per acre produced	N/A	569.82	577.69	769.99
Receipts per acre	N/A	554.87	647.17	816.69
Variable costs	N/A	301.36	238.45	287.57
Economic characteristics:				
Total cash income--				
Livestock sales	N/A	8,810	12,384	3,884
+ Crop sales	N/A	65,463	256,174	89,873
+ Other farm income	N/A	8,709	28,771	2,616
= Gross cash farm income	N/A	82,982	297,329	96,373
- Cash operating expenses	N/A	60,552	198,398	76,579
= Net cash farm income	N/A	22,430	98,931	19,794
+ Nonfarm income	N/A	6,368	1,245	551
= Total cash income	N/A	28,798	100,176	20,345
Net worth--				
Land and buildings	N/A	69,242	101,230	135,432
+ Farm equipment	N/A	53,165	173,009	62,967
+ Livestock inventory	N/A	3,431	13,824	3,995
+ Crop inventory	N/A	812	10,302	5,137
+ Purchased inputs	N/A	0	509	1,067
= Farm assets	N/A	126,650	298,874	208,598
- Farm debt	N/A	94,398	190,831	81,173
= Net worth	N/A	32,252	108,043	127,425
		Percent 2/		
Debt/asset ratio	N/A	75	64	39

N/A=Not available.
1/ Structural characteristics apply to sugar beet acres only.
2/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

Figure 15

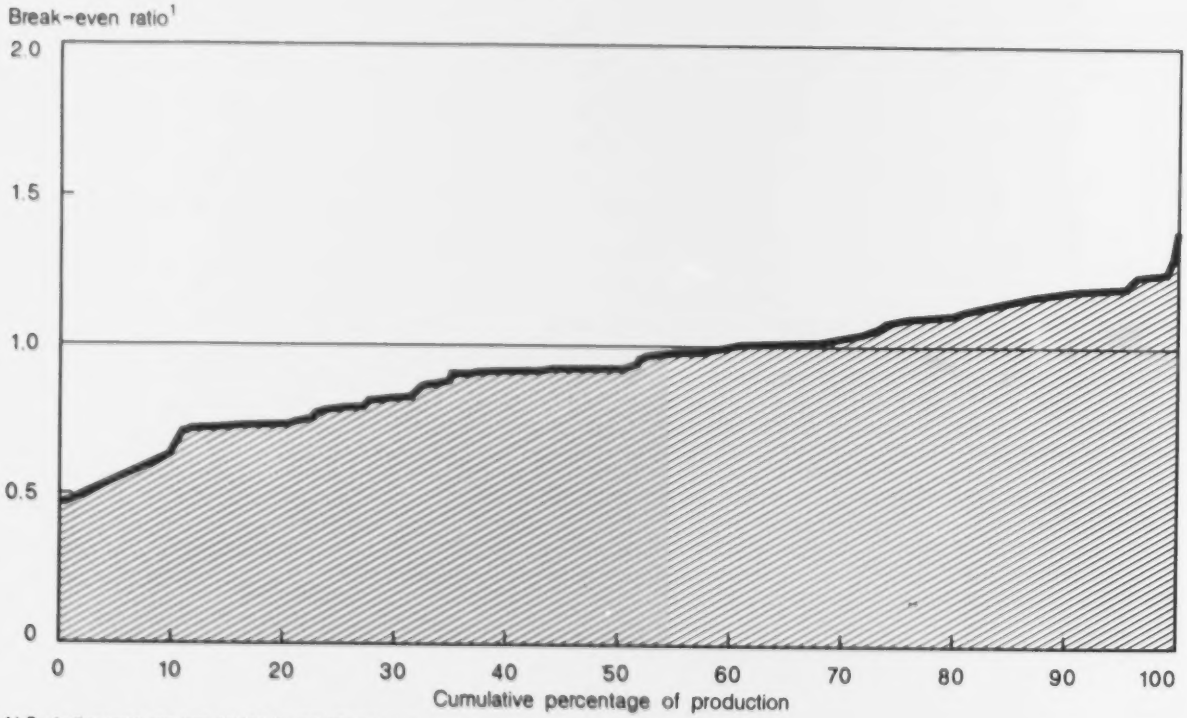
Region 6: Percentage of sugar beets produced at selected cost levels per ton, 1984



Source: 1984 Farm Costs and Returns Survey.

Figure 16

Region 6: Percentage of sugar beets produced at selected break-even ratios, 1984



1/ Production costs per acre divided by receipts per acre.
Source: 1984 Farm Costs and Returns Survey.

Sugar Beet Production Region 7: Western Idaho and Oregon

Sugar beet region 7 accounted for 6.5 percent of the U.S. acres of sugar beets in 1984. Those farms having the highest cost per ton of beets produced had no livestock sales and negative total cash income (table 35). Those farms with the lowest cost per acre produced owned considerable farm equipment, but no land, buildings, livestock, or purchased inputs (table 36). All farms in this region had receipts per acre of $700 or more (table 37). The following facts pertain to this region's production and cost levels:

- The 1984 support price or guaranteed payment level for this region was $31.05 per net ton, and the actual price received by the growers was $36.90 per net ton (fig. 17).
- Over 75 percent of the 1984 sugar beet crop was produced at a net profit (fig. 18).
- Individual farm firm production costs ranged from $20.34 to $46.89 per ton.
- The average cost of producing the 1984 sugar beet crop, weighted by acres planted, was estimated at $34.68 per ton (table 8).
- Producers operated an average of 566 acres total in 1984 and harvested 150 acres of sugar beets (table 4).
- Beef and hog production were the primary livestock enterprises reported with sales averaging $2,485 and $2,358 per farm (table 6).
- Sugar beet operators in this region reported average livestock sales of $4,843 and crop sales of $261,055. Gross cash farm income (the total of livestock and crop sales plus other farm-related income) averaged $274,789, with 53 percent of gross sales accounted for by sugar beets (table 12).
- Net worth (farm assets less farm debt) averaged $404,213 with an average debt/asset ratio of 42 percent (table 16).

Table 35--The effect of cost per ton of sugar beets produced on structural and economic characteristics in Region 7 in 1984

Item	Cost per ton of beets produced			
	Less than $25	$25 - $29	$30 - $39	$40 or more
Structural characteristics: 1/				
		Tons 2/		
Yield per acre	N/A	28	24	22
		Dollars 2/		
Cost per ton produced	N/A	27.64	34.54	44.14
Cost per acre produced	N/A	766.94	837.94	987.55
Receipts per acre	N/A	1,027.87	897.96	827.82
Variable costs	N/A	358.55	272.74	378.82
Economic characteristics:				
Total cash income--				
Livestock sales	N/A	20,772	1,416	0
+ Crop sales	N/A	330,671	240,342	259,004
+ Other farm income	N/A	7,944	8,011	10,727
= Gross cash farm income	N/A	359,387	249,769	269,731
- Cash operating expenses	N/A	263,903	223,560	279,336
= Net cash farm income	N/A	95,484	26,209	(9,605)
+ Nonfarm income	N/A	869	1,474	4,102
= Total cash income	N/A	96,353	27,683	(5,503)
Net worth--				
Land and buildings	N/A	498,954	307,534	887,467
+ Farm equipment	N/A	259,946	195,424	181,456
+ Livestock inventory	N/A	9,768	2,337	15,008
+ Crop inventory	N/A	15,478	1,097	2,535
+ Purchased inputs	N/A	6,600	1,875	2,447
= Farm assets	N/A	790,746	508,267	1,088,913
- Farm debt	N/A	333,565	258,629	379,149
= Net worth	N/A	457,181	249,638	709,764
		Percent 2/		
Debt/asset ratio	N/A	42	51	35

N/A=Not available.
1/ Structural characteristics apply to sugar beet acres only.
2/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

Table 36--The effect of cost per acre of sugar beets produced on structural and economic characteristics in Region 7 in 1984

Item	Cost per acre of beets produced			
	Less than $400	$400 - $549	$550 - $699	$700 or more
Structural characteristics: 1/				
			Tons 2/	
Yield per acre	N/A	N/A	22	25
			Dollars 2/	
Cost per ton produced	N/A	N/A	31.51	36.08
Cost per acre produced	N/A	N/A	674.17	901.51
Receipts per acre	N/A	N/A	800.27	939.54
Variable costs	N/A	N/A	270.64	325.21
Economic characteristics:				
Total cash income--				
Livestock sales	N/A	N/A	0	5,189
+ Crop sales	N/A	N/A	288,873	259,072
+ Other farm income	N/A	N/A	11,933	8,675
= Gross cash farm income	N/A	N/A	300,806	272,936
- Cash operating expenses	N/A	N/A	321,581	240,863
= Net cash farm income	N/A	N/A	(20,775)	32,073
+ Nonfarm income	N/A	N/A	10,779	1,906
= Total cash income	N/A	N/A	(9,996)	33,979
Net worth--				
Land and buildings	N/A	N/A	0	512,254
+ Farm equipment	N/A	N/A	317,503	196,891
+ Livestock inventory	N/A	N/A	0	7,385
+ Crop inventory	N/A	N/A	459	4,538
+ Purchased inputs	N/A	N/A	0	3,083
= Farm assets	N/A	N/A	317,962	724,151
- Farm debt	N/A	N/A	49,592	310,252
= Net worth	N/A	N/A	268,370	413,899
			Percent 2/	
Debt/asset ratio	N/A	N/A	16	43

N/A=Not available.
1/ Structural characteristics apply to sugar beet acres only.
2/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

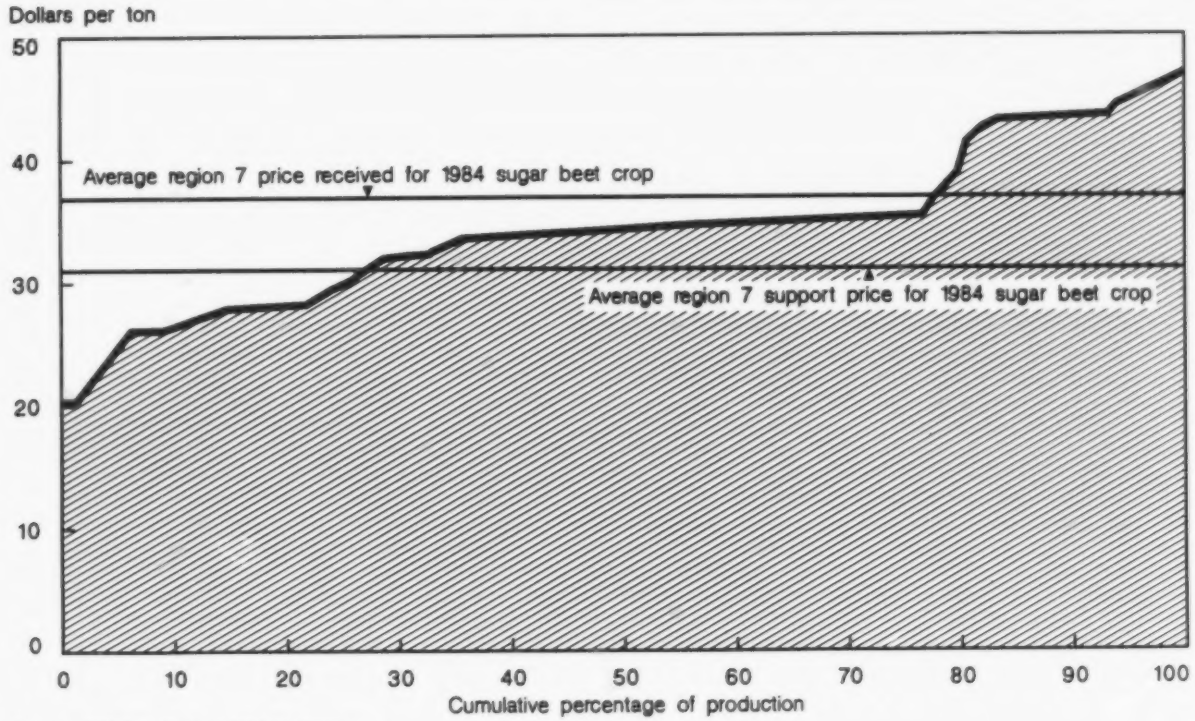
Table 37--The effect of value per acre of sugar beet receipts on structural and economic characteristics in Region 7 in 1984

Item	Value per acre of beet receipts			
	Less than $500	$500 - $599	$600 - $699	$700 or more
Structural characteristics: 1/				
			Tons 2/	
Yield per acre	N/A	N/A	N/A	25
			Dollars 2/	
Cost per ton produced	N/A	N/A	N/A	35.11
Cost per acre produced	N/A	N/A	N/A	853.65
Receipts per acre	N/A	N/A	N/A	910.22
Variable costs	N/A	N/A	N/A	313.72
Economic characteristics:				
Total cash income--				
Livestock sales	N/A	N/A	N/A	4,843
+ Crop sales	N/A	N/A	N/A	261,055
+ Other farm income	N/A	N/A	N/A	8,891
= Gross cash farm income	N/A	N/A	N/A	274,789
- Cash operating expenses	N/A	N/A	N/A	246,236
= Net cash farm income	N/A	N/A	N/A	28,553
+ Nonfarm income	N/A	N/A	N/A	2,496
= Total cash income	N/A	N/A	N/A	31,049
Net worth--				
Land and buildings	N/A	N/A	N/A	478,157
+ Farm equipment	N/A	N/A	N/A	204,919
+ Livestock inventory	N/A	N/A	N/A	6,894
+ Crop inventory	N/A	N/A	N/A	4,267
+ Purchased inputs	N/A	N/A	N/A	2,878
= Farm assets	N/A	N/A	N/A	697,115
- Farm debt	N/A	N/A	N/A	292,902
= Net worth	N/A	N/A	N/A	404,213
			Percent 2/	
Debt/asset ratio	N/A	N/A	N/A	42

N/A=Not available.
1/ Structural characteristics apply to sugar beet acres only.
2/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

Figure 17

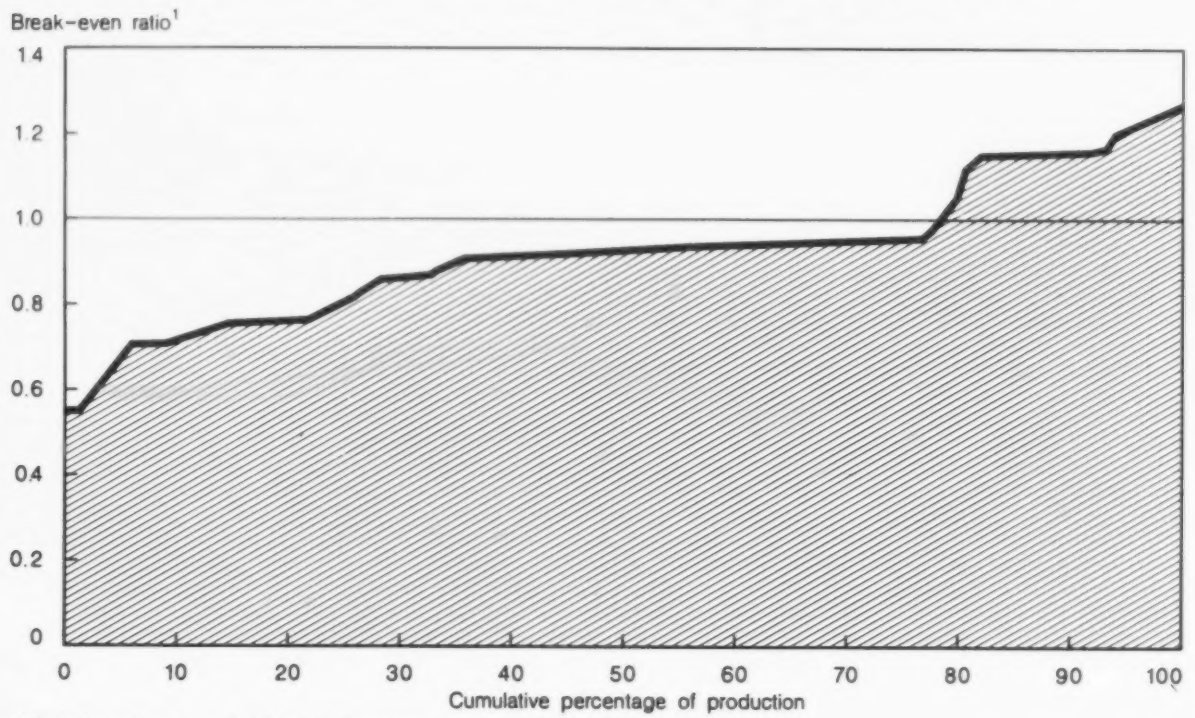
Region 7: Percentage of sugar beets produced at selected cost levels per ton, 1984



Source: 1984 Farm Costs and Returns Survey.

Figure 18

Region 7: Percentage of sugar beets produced at selected break-even ratios, 1984



1/ Production costs per acre divided by receipts per acre.
Source: 1984 Farm Costs and Returns Survey.

Sugar Beet Production Region 8: California

Sugar beet region 8 accounted for 18.8 percent of the U.S. acres of sugar beets in 1984. Only farms with production costs of $25 to $29 per ton of sugar beets were profitable (table 38). Those farms having the highest cost per acre produced had a debt/asset ratio of 97 percent (table 39). Those farms having the highest valued receipts per acre also had negative total cash income (table 40). The following facts pertain to this region's production and cost levels:

- The 1984 support price or guaranteed payment level for this region was $32.98 per net ton, and the actual price received by the growers was $35.10 per net ton (fig. 19).
- Around 50 percent of the 1984 sugar beet crop was produced at a net profit (fig. 20).
- Individual farm firm production costs ranged from $18.61 to $80.66 per ton.
- The average cost of producing the 1984 sugar beet crop, weighted by acres planted, was estimated at $34.57 per ton (table 8).
- Producers operated an average of 766 acres total in 1984 and harvested 119 acres of sugar beets (table 4).
- Beef production was the only livestock enterprise reported, with sales averaging $3,478 per farm (table 6).
- Sugar beet operators in this region reported average livestock sales of $3,478 and crop sales of $361,892. Gross cash farm income (the total of livestock and crop sales plus other farm-related income) averaged $375,196, with 30 percent of gross sales accounted for by sugar beets (table 12).
- Net worth (farm assets less farm debt) averaged $199,715 with an average debt/asset ratio of 66 percent (table 16).

Table 38--The effect of cost per ton of sugar beets produced on structural and economic characteristics in Region 8 in 1984

Item	Cost per ton of beets produced			
	Less than $25	$25 - $29	$30 - $39	$40 or more
Structural characteristics: 1/				
			Tons 2/	
Yield per acre	32	27	26	23
			Dollars 2/	
Cost per ton produced	21.79	27.57	36.46	45.92
Cost per acre produced	709.20	747.35	925.66	1,044.90
Receipts per acre	1,062.85	951.96	896.11	826.46
Variable costs	306.35	381.26	459.55	535.65
Economic characteristics:				
Total cash income--				
Livestock sales	0	0	213	24,342
+ Crop sales	146,598	1,399,636	614,648	971,412
+ Other farm income	1,799	32,906	11,155	43,083
= Gross cash farm income	148,397	1,432,542	626,016	1,038,837
- Cash operating expenses	167,189	1,264,783	669,262	1,300,878
= Net cash farm income	(18,792)	167,759	(43,246)	(262,041)
+ Nonfarm income	147	11,584	1,865	5,017
= Total cash income	(18,645)	179,343	(41,381)	(257,024)
Net worth--				
Land and buildings	145,460	2,501,493	1,062,423	336,519
+ Farm equipment	144,463	265,079	261,178	375,613
+ Livestock inventory	0	0	1,878	14,222
+ Crop inventory	756	116,220	3,170	108,008
+ Purchased inputs	8	264	2,035	868
= Farm assets	290,687	2,883,056	1,330,684	835,230
- Farm debt	63,690	640,484	546,484	1,751,337
= Net worth	226,997	2,242,572	784,200	(916,107)
			Percent 2/	
Debt/asset ratio	22	22	41	210

1/ Structural characteristics apply to sugar beet acres only.
2/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

Table 39--The effect of cost per acre of sugar beets produced on structural and economic characteristics in Region 8 in 1984

Item	Cost per acre of beets produced			
	Less than $400	$400 - $549	$550 - $699	$700 or more
Structural characteristics: 1/			Tons 2/	
Yield per acre	N/A	N/A	22	27
			Dollars 2/	
Cost per ton produced	N/A	N/A	32.14	36.19
Cost per acre produced	N/A	N/A	641.20	944.65
Receipts per acre	N/A	N/A	754.58	947.54
Variable costs	N/A	N/A	347.35	464.41
Economic characteristics:				
Total cash income--				
Livestock sales	N/A	N/A	0	12,104
+ Crop sales	N/A	N/A	160,845	862,905
+ Other farm income	N/A	N/A	2,485	26,647
= Gross cash farm income	N/A	N/A	163,330	901,656
- Cash operating expenses	N/A	N/A	166,445	1,057,122
= Net cash farm income	N/A	N/A	(3,115)	(155,466)
+ Nonfarm income	N/A	N/A	428	3,925
= Total cash income	N/A	N/A	(2,687)	(151,541)
Net worth--				
Land and buildings	N/A	N/A	187,738	787,959
+ Farm equipment	N/A	N/A	136,513	333,168
+ Livestock inventory	N/A	N/A	0	7,798
+ Crop inventory	N/A	N/A	5,441	56,132
+ Purchased inputs	N/A	N/A	253	680
= Farm assets	N/A	N/A	329,945	1,185,737
- Farm debt	N/A	N/A	63,350	1,146,203
= Net worth	N/A	N/A	266,595	39,534
			Percent 2/	
Debt/asset ratio	N/A	N/A	19	97

N/A=Not available.
1/ Structural characteristics apply to sugar beet acres only.
2/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

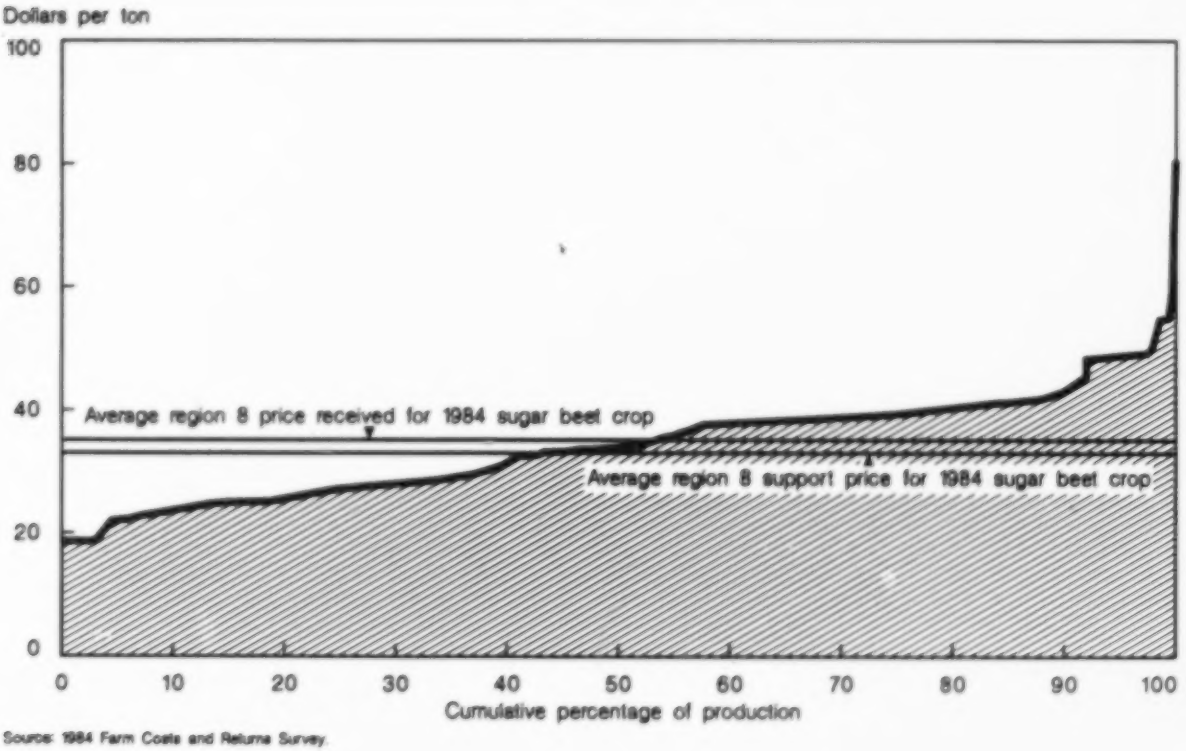
Table 40--The effect of value per acre of sugar beet receipts on structural and economic characteristics in Region 8 in 1984

Item	Value per acre of beet receipts			
	Less than $500	$500 - $599	$600 - $699	$700 or more
Structural characteristics: 1/				
		Tons 2/		
Yield per acre	14	16	N/A	27
		Dollars 2/		
Cost per ton produced	40.12	40.43	N/A	33.75
Cost per acre produced	583.91	646.66	N/A	913.21
Receipts per acre	351.77	566.26	N/A	964.25
Variable costs	323.29	301.22	N/A	452.71
Economic characteristics:				
Total cash income--				
Livestock sales	0	0	N/A	3,387
+ Crop sales	164,440	742,705	N/A	354,639
+ Other farm income	19,968	41,520	N/A	8,626
= Gross cash farm income	184,408	784,225	N/A	366,652
- Cash operating expenses	276,440	598,473	N/A	420,526
= Net cash farm income	(92,032)	185,752	N/A	(53,874)
+ Nonfarm income	12,043	2,496	N/A	1,179
= Total cash income	(79,989)	188,248	N/A	(52,695)
Net worth--				
Land and buildings	211,276	626,384	N/A	357,308
+ Farm equipment	182,842	447,712	N/A	189,569
+ Livestock inventory	0	0	N/A	2,343
+ Crop inventory	10,555	0	N/A	20,880
+ Purchased inputs	820	8,021	N/A	204
= Farm assets	405,493	1,082,117	N/A	570,304
- Farm debt	337,428	463,551	N/A	379,198
= Net worth	68,065	618,566	N/A	191,106
		Percent 2/		
Debt/asset ratio	83	43	N/A	66

N/A=Not available.
1/ Structural characteristics apply to sugar beet acres only.
2/ Average per farm.
Source: 1984 Farm Costs and Returns Survey.

Figure 19

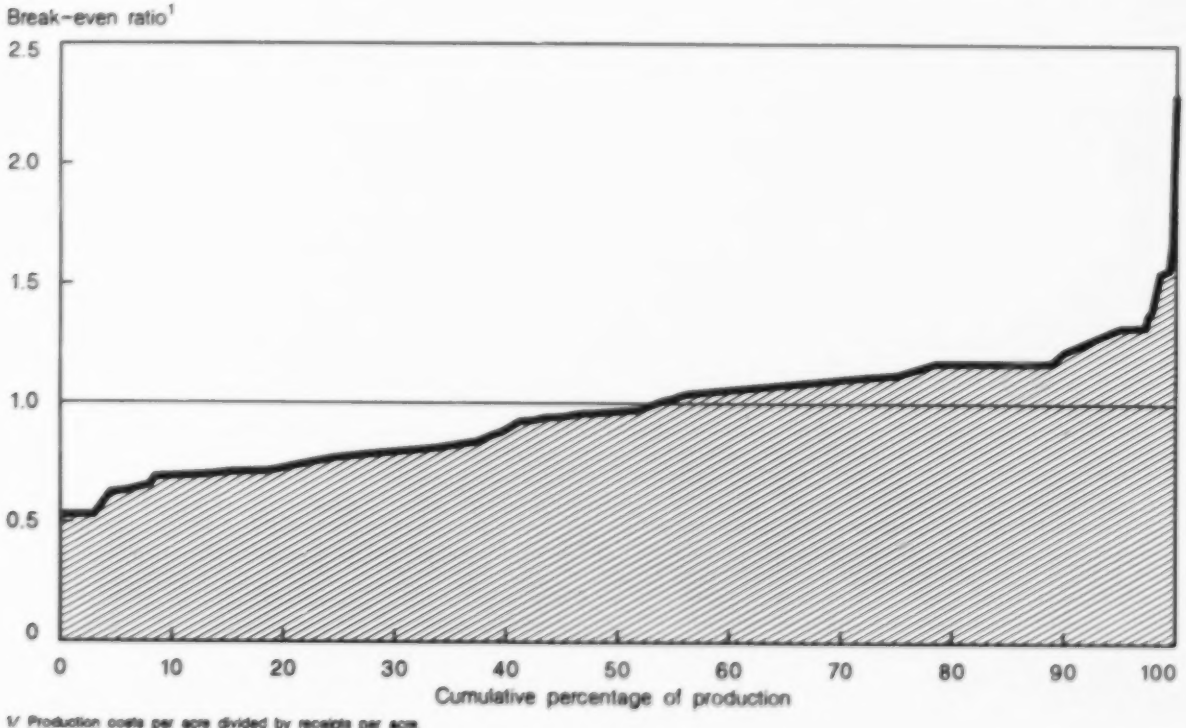
Region 8: Percentage of sugar beets produced at selected cost levels per ton, 1984



Source: 1984 Farm Costs and Returns Survey.

Figure 20

Region 8: Percentage of sugar beets produced at selected break-even ratios, 1984



1/ Production costs per acre divided by receipts per acre.
Source: 1984 Farm Costs and Returns Survey.

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